

**Treatability Study Evaluation Report
for
Underground Storage Tank Site 1120**

**Outlying Landing Field Bronson
Pensacola, Florida**



**Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0302**

October 2004

**TREATABILITY STUDY EVALUATION REPORT
FOR
UNDERGROUND STORAGE TANK SITE 1120**

**OUTLYING LANDING FIELD BRONSON
PENSACOLA, FLORIDA**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

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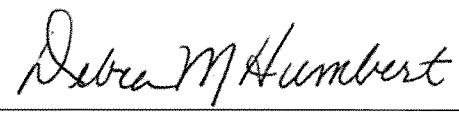
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The professional opinions rendered in this decision document identified as Treatability Study Evaluation Report for Underground Storage Tank Site 1120, Outlying Landing Field Bronson, Pensacola, Florida were developed in accordance with commonly accepted procedures consistent with applicable standards of practice. This document was prepared under the supervision of the signing engineer and is based on information obtained from others. If conditions are determined to exist differently than those described in this document, then the undersigned professional engineer should be notified to evaluate the effects of any additional information on the project described in this document.

October 13, 2004
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ACRONYMS

ASTM	American Society for Testing and Materials
bls	Below Land Surface
°C	Degrees Celsius
CAR	Contamination Assessment Report
CLEAN	Comprehensive Long-Term Environmental Action Navy
COC	Constituent of Concern
CTO	Contract Task Order
DPT	Direct Push Technology
DO	Dissolved Oxygen
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
Fe ²⁺	Ferrous Iron
Fe ³⁺	Ferric Iron
FL-PRO	Florida Petroleum Range Organics
ft/yr	Feet per Year
GCTL	Groundwater Cleanup Target Level
H ₂ S	Hydrogen Sulfide
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
MgO ₂	Magnesium Peroxide
Mg(OH) ₂	Magnesium Hydroxide
MOP	Monitoring Only Plan
mS/cm	Microsiemens per Centimeter
mV	Millivolts
NA	Not Analyzed
NADSC	Natural Attenuation Default Source Concentrations
NAS	Naval Air Station
OLF	Outlying Landing Field
ORC®	Oxygen Releasing Compound
ORP	Oxidation-Reduction Potential
PAH	Polynuclear aromatic hydrocarbons
PVC	Polyvinyl Chloride
PWC	Public Works Center
RAP	Remedial Action Plan
SAR	Site Assessment Report

ACRONYMS (CONTINUED)

SARA	Site Assessment Report Addendum
SOP	Standard Operating Procedure
TOC	Total Organic Carbon
TRPH	Total Recoverable Petroleum Hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
UST	Underground Storage Tank
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds

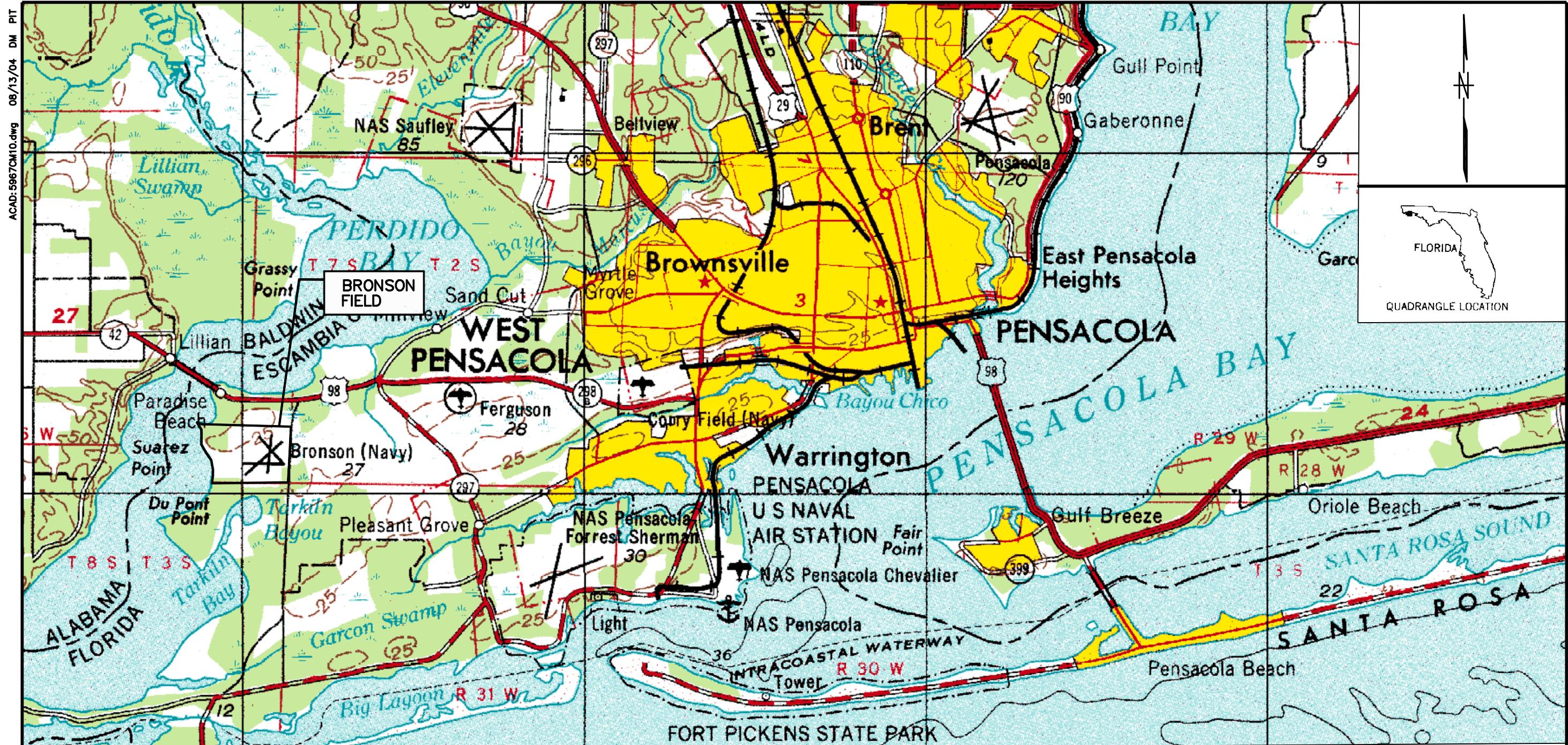
1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this Treatability Study Evaluation Report for Underground Storage Tank (UST) Site 1120 at Outlying Landing Field (OLF) Bronson, Pensacola, Florida. This report was prepared for the United States Navy Southern Division, Naval Facilities Engineering Command under contract task order (CTO) 0302 for the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. This report summarizes the Enhanced Natural Attenuation Treatability Study conducted at Site 1120 in accordance with the Treatability Study Work Plan (TtNUS, 2003a). The first, second, and third quarterly post injection sampling events have been previously summarized by TtNUS (2003b, 2003c, and 2004). This report provides a comprehensive evaluation of the injection of Oxygen-Releasing Compound (ORC[®]) and five (baseline and four post-injection) groundwater sampling events conducted as part of this study from June 2003 to June 2004.

1.1 SITE SUMMARY

OLF Bronson is located in northwestern Florida, on the eastern side of Perdido Bay, approximately five miles west of Pensacola, Florida and about one mile from the Alabama State Line (Figure 1-1). OLF Bronson, which consists of approximately 950 acres of grassy areas and forest, is now known as the Blue Angel Recreation Park and is used for recreational purposes. Site 1120, located within the confines of OLF Bronson, is the former location of a boiler room associated with Building 1120. Three USTs were used to supply fuel oil to the boiler. The USTs have been removed from the site and the building demolished. The locations of site features and monitoring wells are shown on Figure 1-2.

Petroleum contamination was observed at the site on June 27, 1994 during the removal of the USTs from Building 1120. UST Closure Assessments were completed in July 1994 and May 1995, followed by the initial Site Assessment completed in August 1997. The Naval Air Station (NAS) Pensacola Navy Public Works Center (PWC) completed a Site Assessment of Site 1120 and in March 1998 submitted a Site Assessment Report (SAR) to Florida Department of Environmental Protection (FDEP). Upon review of the Site Assessment Report (PWC, 1998), the FDEP issued a technical review letter, which requested additional site assessment in order to meet the requirements of Chapter 62-770, Florida Administrative Code (FAC). The SAR Addendum (SARA) investigation was conducted in July 2000 by TtNUS and a SARA was submitted to FDEP on May 23, 2001 (TtNUS, 2001). Based on the additional site assessment data, the SARA report recommended monitored natural attenuation as an appropriate remedy (TtNUS 2001). On August 8, 2001, FDEP issued a request for a Monitoring Only Plan (MOP) proposal for the site. On December 12, 2001, TtNUS submitted the requested MOP to FDEP. The MOP was



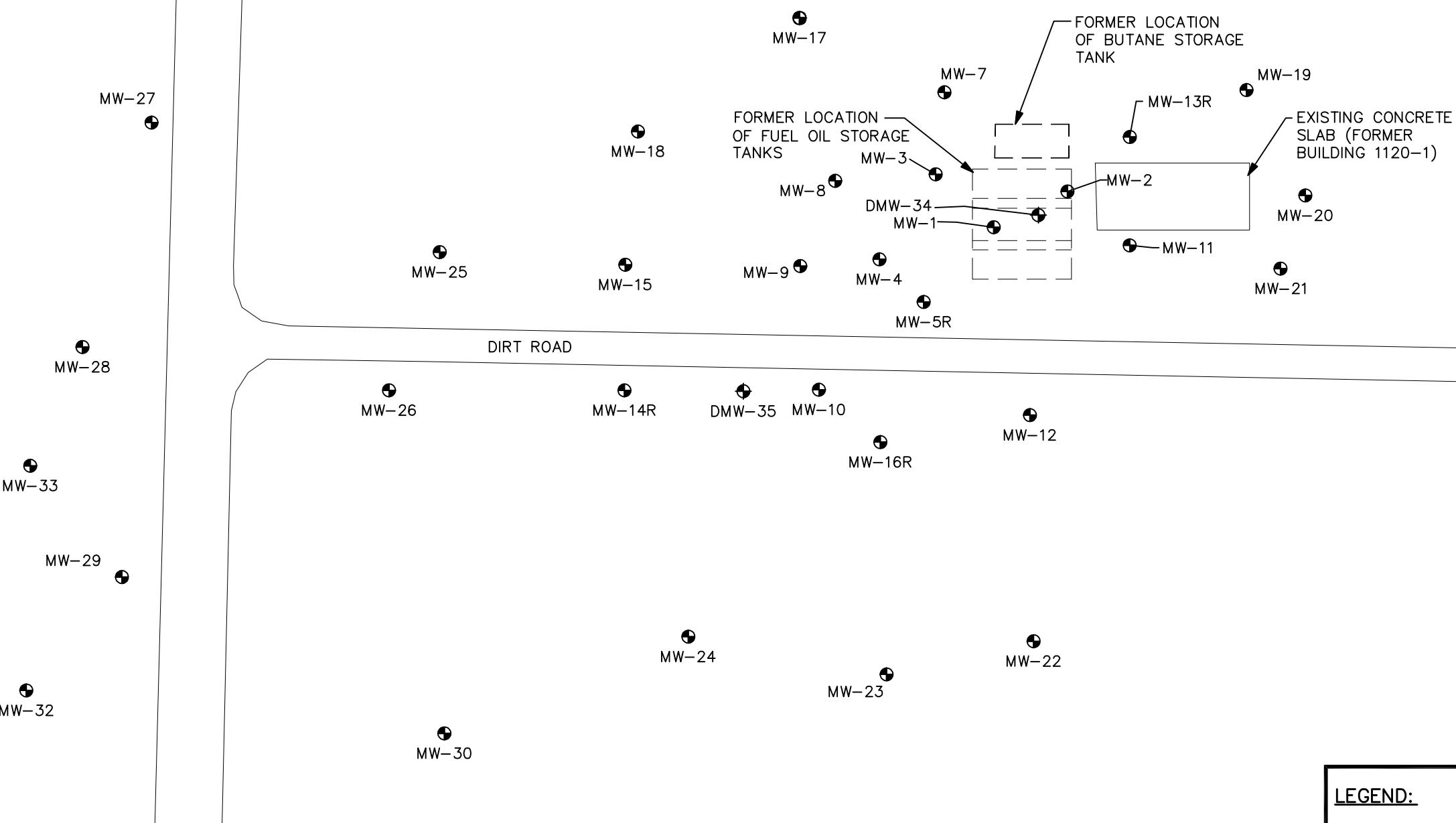
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SITE LOCATION MAP
UST SITE 1120
TREATABILITY STUDY EVALUATION REPORT
OUTLYING LANDING FIELD BRONSON
PENSACOLA, FLORIDA

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OWNER NO.	0000
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LEGEND:

- MONITORING WELL LOCATION AND DESIGNATION
MW-22
- DEEP MONITORING WELL LOCATION AND DESIGNATION
DMW-35

0 40 80
APPROXIMATE SCALE IN FEET

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NAVFAC		DRAWING NO. FIGURE 1-2
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approved by FDEP on April 2, 2002 in an Approval Order that outlined the requirements for NA monitoring at the site.

TtNUS personnel conducted the first and second quarterly groundwater monitoring events in April 2002 and July 2002, respectively. Data collected during the second quarterly groundwater monitoring event indicated that concentrations of contaminants of concern (COCs) in the groundwater exceeded FDEP site-specific action levels (TtNUS, 2002). The COCs, naphthalene and 2-methylnaphthalene, detected in monitoring wells MW-4 and MW-14R and 1-methylnaphthalene detected in monitoring well MW-14R were reported at concentrations exceeding the Action Levels specified in the MOP Approval Order for source area "contaminated wells" (TtNUS, 2002).

A confirmation sampling event was completed on September 18, 2002, which confirmed exceedances of the action levels. The analytical data from the confirmation sampling event indicated that 1-methylnaphthalene [201 micrograms per liter ($\mu\text{g}/\text{L}$) and 2-methylnaphthalene (278 $\mu\text{g}/\text{L}$) were detected in monitoring well MW-14R exceeded the MOP Approval Order action levels of 200 $\mu\text{g}/\text{L}$ and 200 $\mu\text{g}/\text{L}$, respectively. The naphthalene concentration detected in MW-14R exceeded FDEP's Groundwater Cleanup Target Level (GCTL), but was less than the action level.

Based on the second quarter groundwater sampling event and confirmation sample results, TtNUS recommended that a Remedial Action Plan (RAP) be prepared for Site 1120. The recommendations stated the RAP should address the groundwater contamination detected during the quarterly groundwater monitoring events and in addition, because the MOP Approval Order specified that soil contamination detected during the site assessment should be further evaluated at the end of the natural attenuation monitoring, the RAP should also address site soil contamination as well.

Although a RAP was recommended, the Navy decided that to aid in evaluating remedial options for the site, an Enhanced Natural Attenuation Treatability Study would be conducted to determine the effectiveness of ORC® technology at reducing the contaminant concentrations within the plume area. In May 2003, TtNUS submitted to the Navy an Enhanced Natural Attenuation Treatability Study Work Plan for Site 1120 (TtNUS 2003a).

1.2 SUMMARY OF CONTAMINATION

Groundwater contamination has been documented at the site during the assessment activities discussed in Section 1.1. The groundwater contamination appears to be fuel related and historically extended from monitoring well MW-2 southwest to just east of perimeter well MW-28. Volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and total recoverable petroleum hydrocarbons (TRPH) are the primary COCs making up the commingled contaminant plume. The highest levels of contamination were

reported at source monitoring wells MW-4 and MW-14R. Groundwater contamination has been detected at concentrations in excess of the FDEP GCTLs from upgradient well MW-2 to approximately 30 feet east of downgradient perimeter monitoring well MW-28.

2.0 TREATABILITY STUDY OPERATIONS

2.1 TREATABILITY STUDY OBJECTIVE

Natural attenuation includes several mechanisms including physical (dispersion, dilution, diffusion, and volatilization), chemical (abiotic degradation, hydrolysis, and sorption), and biological (biodegradation) processes. While all of these processes are effective in reducing contaminant concentrations, biodegradation is often regarded as the most desirable as it involves the destruction of contaminants. The objective of the Enhanced Natural Attenuation Treatability Study was to determine the effectiveness of using a biostimulant to enhance the biodegradation of petroleum hydrocarbon in groundwater at Site 1120. The treatability study was designed to focus on the contaminant source and the plume immediately downgradient of the source where contamination was detected in exceedance of FDEP regulatory criteria as shown on Figure 2-1.

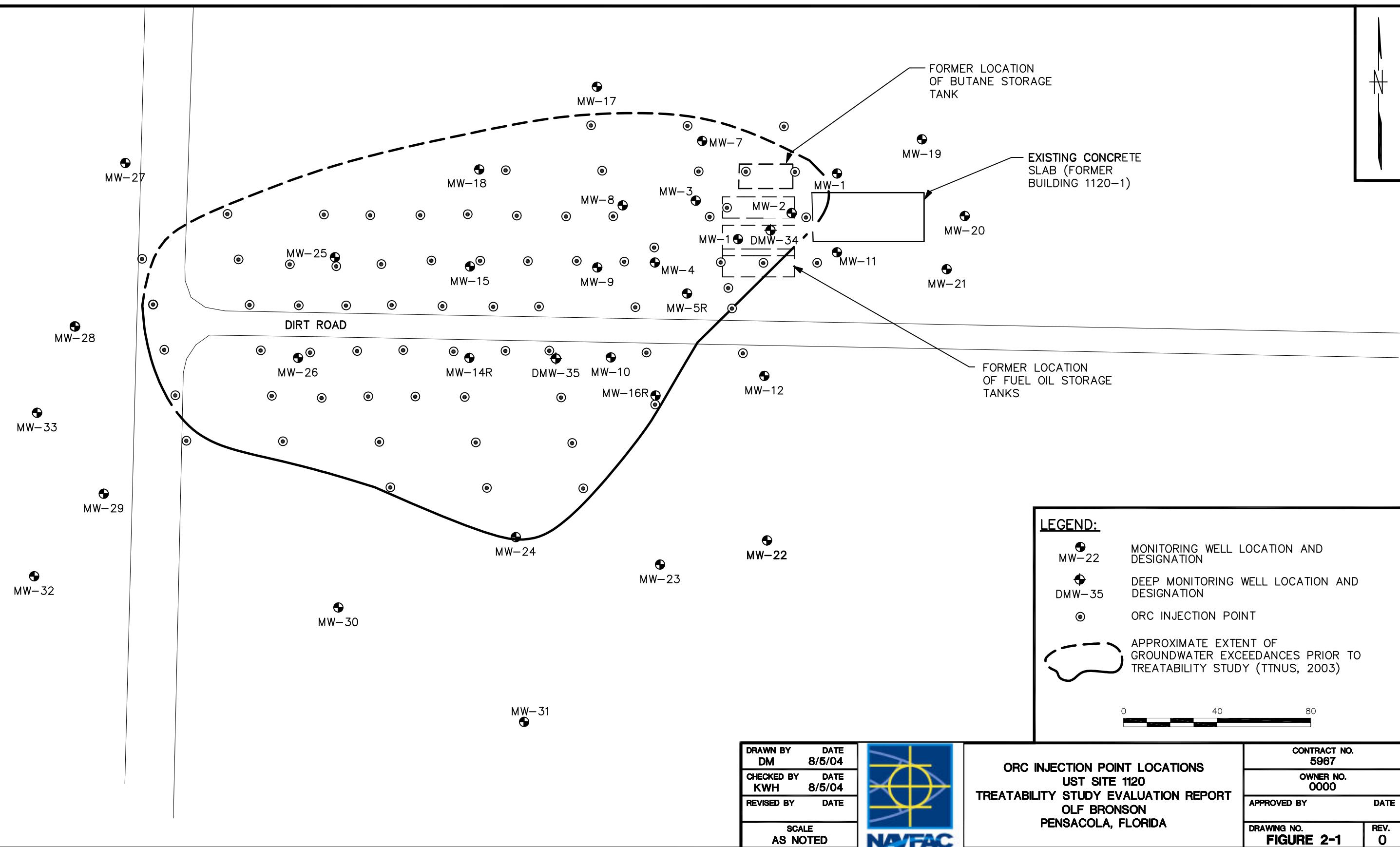
2.2 TREATABILITY STUDY CONCEPTUAL MODEL AND APPROACH

Numerous studies have shown that petroleum hydrocarbons, including aliphatic and aromatic compounds, can be biodegraded by a variety of microbially mediated processes. Microorganisms transform petroleum contaminants (such as benzene, xylene and other compounds such as naphthalene) and obtain carbon and energy from these compounds for their survival and growth. Microbes digest these hydrocarbons through a series of enzyme-catalyzed oxidative-reduction reactions. The metabolized intermediates of this transformation process are innocuous compounds such as biomass or if the contaminants are completely oxidized, carbon dioxide and water [American Society for Testing and Materials (ASTM), 1998 and Wiedemeier and Chapelle, 1998]. While both aerobic respiration and anaerobic reduction have been successfully demonstrated, biodegradation via aerobic mechanisms is relatively well understood and are more rapid than anaerobic reduction (ASTM, 1998).

As a result, this treatability study was designed to create and foster conditions that stimulate the indigenous microbial population to aerobically biodegrade the petroleum hydrocarbons present in the saturated zone. This strategy relies on supplying oxygen to the subsurface to maintain consistently high dissolved oxygen (DO) levels and sufficient nutrients to increase the microbial activity, thereby increasing contaminant destruction through aerobic respiration.

2.3 OXYGEN STIMULANT SELECTED

Oxygen and nutrients can be delivered into the subsurface in several forms including direct oxygen gas injection or via chemicals that release oxygen. ORC[®], a chemical-release formulation, was selected for this project. ORC[®] is a proprietary product produced by Regenesis Bioremediation Products, of



San Clemente, California. ORC® is a patented formulation of magnesium peroxide (MgO_2) intercalated with food-grade phosphate that slowly releases molecular oxygen into the aquifer when hydrated. The phosphate is used to create a slow time-release of oxygen, which is critical in a passive, low-cost oxygen application system. The hydrated product becomes magnesium hydroxide [$Mg(OH)_2$]. Through this chemical reaction and the groundwater flow rate, oxygen is released at a relatively constant rate over an extended period of time. The oxygen consumption rate is dependent upon the natural biological and chemical oxygen demand and the groundwater and contaminant flux at the site.

2.4 OXYGEN INJECTION SUMMARY

This pilot-scale treatability study consisted of the installation of 69 injection borings into which an ORC®-enriched slurry was injected. The study was originally designed (TtNUS, 2003a) such that these injection borings were clustered in eight zones or banks, with each bank oriented perpendicular to groundwater flow (southwest). Each of these banks was designed to create an oxygen-enriched biological barrier and a passive aerobic reaction zone to reduce petroleum hydrocarbon concentrations. However, prior to injection fieldwork TtNUS decided the best use of the injection points would be to concentrate in areas where concentrations known to be above GCTLs. Therefore, the extended banks were shortened and a higher density of points were completed in known source areas. These borings were installed in the locations shown on Figure 2-1.

Each boring was advanced using direct push technology (DPT) (e.g., Geoprobe). Shallow groundwater contamination is assumed to extend from the water table to approximately 15 feet below land surface (bls), based on the depths of the shallow monitoring wells previously installed at the site. Therefore, each of the injection points was installed to a depth of 10 feet below the estimated depth to water (totaling approximately 25 feet bls) and the ORC® slurry injected across the entire saturated thickness at each injection point (approximately 10 feet).

2.4.1 Mixing and Injection

The ORC® bulk powder was drop-shipped from the Regenesis manufacturing facility in Inwood, New York. For the ORC® injection borings, approximately 0.63 gallon of potable water was required per 10 pounds of ORC® powder for a 65-percent mixture. The dry ORC® powder (to be injected at 4 pounds per foot or approximately 40 pounds per injection point) was mixed into a slurry with potable water and injected during a one-time injection event. As recommended by Regenesis, approximately 2 percent sugar by weight was also added to the mixture to provide a carbon source for the microbial growth. Mixing and injection of ORC® was performed in general accordance with Regenesis' instructions provided in Appendix B of the Treatability Study Work Plan (TSWP) (TtNUS, 2003a). Mixing was performed in a 55-gallon drum and was injected through the DPT slurry/grout pump. The mixed ORC®

was a thin liquid, similar in chemical composition to diluted Milk of MagnesiaTM. A standard environmental slurry mixer/grout pump was used to inject the slurry. The ORC[®] slurry was mixed immediately before and during injection to prevent from settling and hardening during the handling and injection process.

2.5 GROUNDWATER SAMPLING AND SYSTEM OPERATION ACTIVITIES

TtNUS personnel conducted the following sampling events to monitor the performance of the pilot-scale treatability study:

- June 24, 2003 – Baseline groundwater monitoring event
- September 25, 2003 – First quarter groundwater monitoring event
- December 10, 2003 – Second quarter groundwater monitoring event
- March 11, 2004 –Third quarter groundwater monitoring event
- June 8, 2004 – Fourth quarter groundwater monitoring event

Each groundwater monitoring event included synoptic round of water level measurements from on-site monitoring wells and collection of groundwater samples from select monitoring wells. The purpose of the sampling was to measure COCs concentrations and characterize geochemical parameter concentrations. Groundwater samples were collected from monitoring wells noted on Table 2-1 and illustrated on Figure 1-2. The samples were analyzed for select VOCs, PAHs, and TRPH, laboratory natural attenuation parameters [e.g., total organic carbon (TOC) and sulfate] and field natural attenuation parameters (discussed below).

2.5.1 Groundwater Sample Collection and Analyses

Groundwater samples were collected from wells in general accordance with the current FDEP Standard Operating Procedures (SOPs). Depth to water was measured, and the wells were purged prior to sample collection. Purging was accomplished with a peristaltic pump using low-flow purge techniques. During purging, field parameters [pH, conductivity, temperature, DO, and oxidation-reduction potential (ORP)] were measured at approximately 3-to-5 minute intervals using a YSI[®] Model 556 multi-probe meter and flow through cell. The instrument was calibrated according to the manufacturer's specifications at the beginning of each sampling day. A field calibration log is provided in Appendix A. In addition, turbidity was monitored using a La Motte Turbidimeter.

Following the well purging and sampling activities for laboratory parameters, groundwater samples were analyzed in the field for the following natural attenuation parameters: DO, carbon dioxide, alkalinity, ferrous iron, and hydrogen sulfide. Groundwater sample log sheets, and low flow purge data sheets compiled during purging and sampling at each location are provided in Appendix A.

Groundwater samples were also collected for off-site analyses. The groundwater samples were placed on ice and shipped overnight via Federal Express to approved and certified laboratories for analysis. Analyses included VOCs by United States Environmental Protection Agency (USEPA) Method SW846 8026B, PAHs by USEPA Method SW846 8270, TRPH by Florida Method FDEP Florida Petroleum Range Organics (FL-PRO), TOC by USEPA Method 415.1, and sulfate by USEPA Method 375.4. The laboratory data for the baseline and subsequent four quarterly sampling events are included in Appendix B.

3.0 TREATABILITY STUDY RESULTS

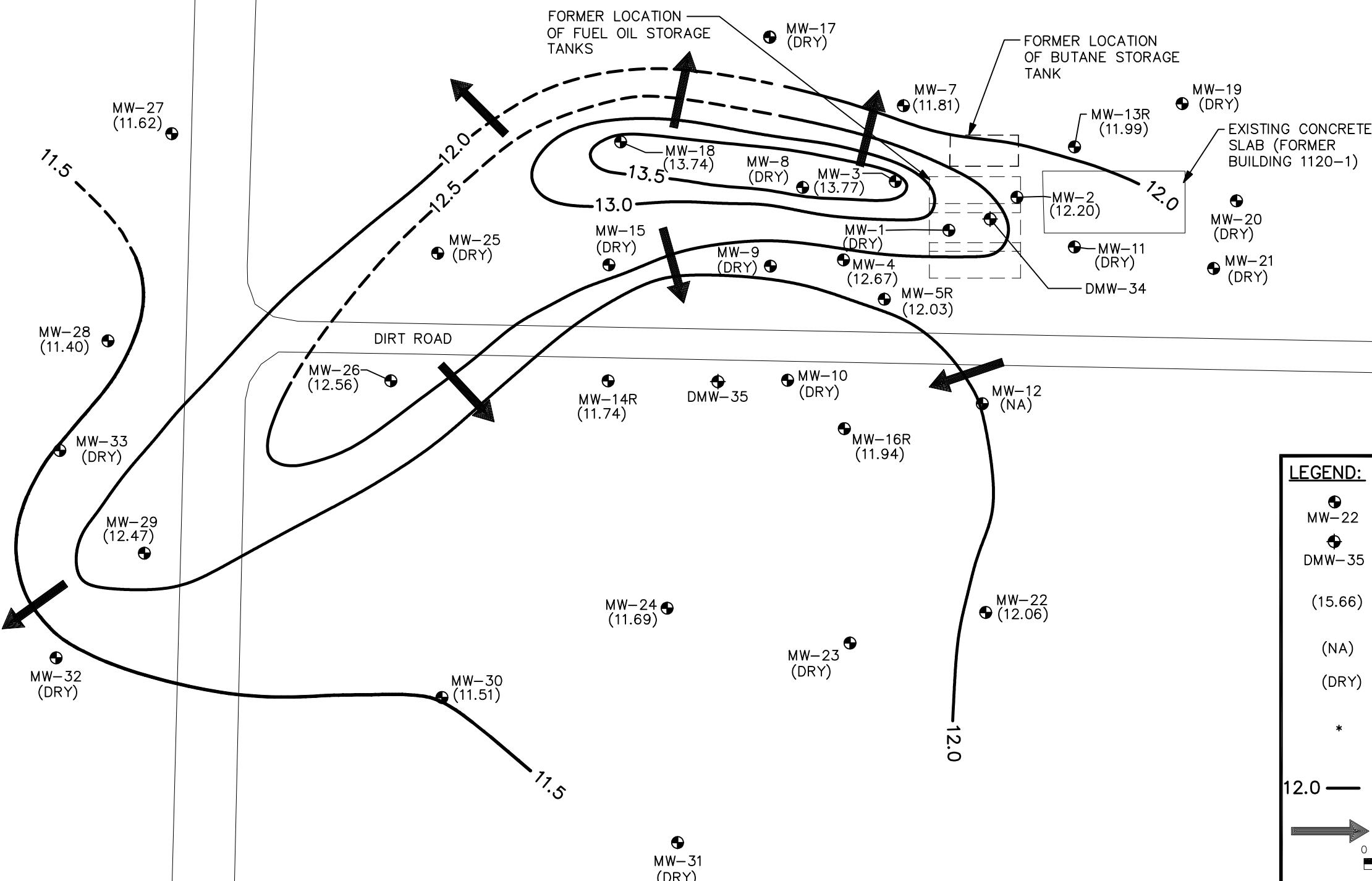
3.1 TREATABILITY STUDY PERFORMANCE

The performance of the Enhanced Bioremediation Treatability Study was monitored by collection and analyses of groundwater samples. This includes direct measurements such as analysis of COCs, indirect measurements such as analysis of geochemical and other data such as hydrogeologic information. Hydrogeologic information was used to determine other factors (e.g., groundwater flow elevation and flow direction, etc.) affecting treatability study performance. This section discusses the hydrogeologic information collected followed by a discussion of contaminant concentrations and geochemistry results. For a more detailed description of the hydrogeology of the site, please refer to the SAR (PWC, 1998).

3.2 GROUNDWATER FLOW AND ELEVATION

Depth to water measurements collected during each quarterly groundwater monitoring event have been tabulated on Table 3-1. Groundwater elevations were calculated from the depth to water measurements and monitoring well top of casing elevations referenced to an arbitrary site-specific datum of 30 feet (the top-of-casing of MW-01). Groundwater flow direction was determined from the groundwater elevations calculated for each sampling event. Free product measurements were also attempted. Based upon these field operations, no measurable light non-aqueous phase liquids are believed to be present at the site.

The water level data collected from each of the field events have been used to create potentiometric surface maps for the surficial aquifer. Data from the fourth quarterly event are shown on Figure 3-1. Water level data from the previous three quarterly events are included in Appendix C. The predominant groundwater flow direction at UST Site 1120 is southwest. This flow direction is consistent with previously reported groundwater flow data. A localized groundwater mound was present immediately to west and/or south of the former location of the USTs during each quarterly sampling event. In this localized area, the groundwater flow direction is radially outward as each figure in Appendix C illustrates. Although this mound was present during all sampling events, the extent, location, and height of the mound has varied from event to event. It was located in the vicinity of MW-5R and MW-11 and was approximately 0.4 foot higher than the surrounding potentiometric surface in September 2003. It was located in the vicinity of MW-1 and MW-8 and was 0.4 foot high in December 2003. In March 2004, it was centered on MW-5R, but was much broader and larger with an approximate height of 0.6 foot. Most recently in June 2004, it was narrow and elongated in an east-southwest orientation between MW-3 and MW-26, and had a height



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GROUNDWATER POTENTIOMETRIC SURFACE MAP,
JUNE 7, 2004
UST SITE 1120
TREATABILITY STUDY EVALUATION REPORT
OUTLYING LANDING FIELD BRONSON
PENSACOLA, FLORIDA

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of approximately 1 foot. The mounding indicates that this area is likely a local recharge area to the surficial aquifer.

The groundwater elevations have also varied significantly across the site from event to event. As shown on Figure 3-2 and the table below, the potentiometric surface has cyclically fluctuated approximately 2 feet from event to event (potential outliers not included).

Water Level Elevations in feet at UST Site 1120					
	Baseline	Q1	Q2	Q3	Q4
	June 2003	September 2003	December 2003	March 2003	June 2004
Minimum	13.16	14.52	12.41	14.03	11.40
Maximum	14.65	16.44	14.08	16.98	12.67

The water levels were lower during the June 2003, December 2003, and June 2004 and higher during September 2003 and March 2003. As discussed in later sections, the water level appears to have had significant effects on contaminant concentrations and biodegradation.

The fluctuating water level coupled with monitoring well construction status have also influenced the ability to measure the potentiometric surface and collect water samples. As noted on Table 3-1, several wells have significant sediment accumulation. This sediment is preventing the use of these wells for monitoring water levels and for collecting groundwater samples when the water table is low. For example in September 2003, when the highest water levels were encountered, only four wells could not be gauged for water levels. However, in June 2004, when the lowest water levels were encountered, 14 to 15 wells could not be monitored. This factor did not prevent the collection of samples from the most critical monitoring wells where contamination historically exceeded regulatory criteria (see Section 3.3).

3.3 GROUNDWATER ANALYTICAL RESULTS

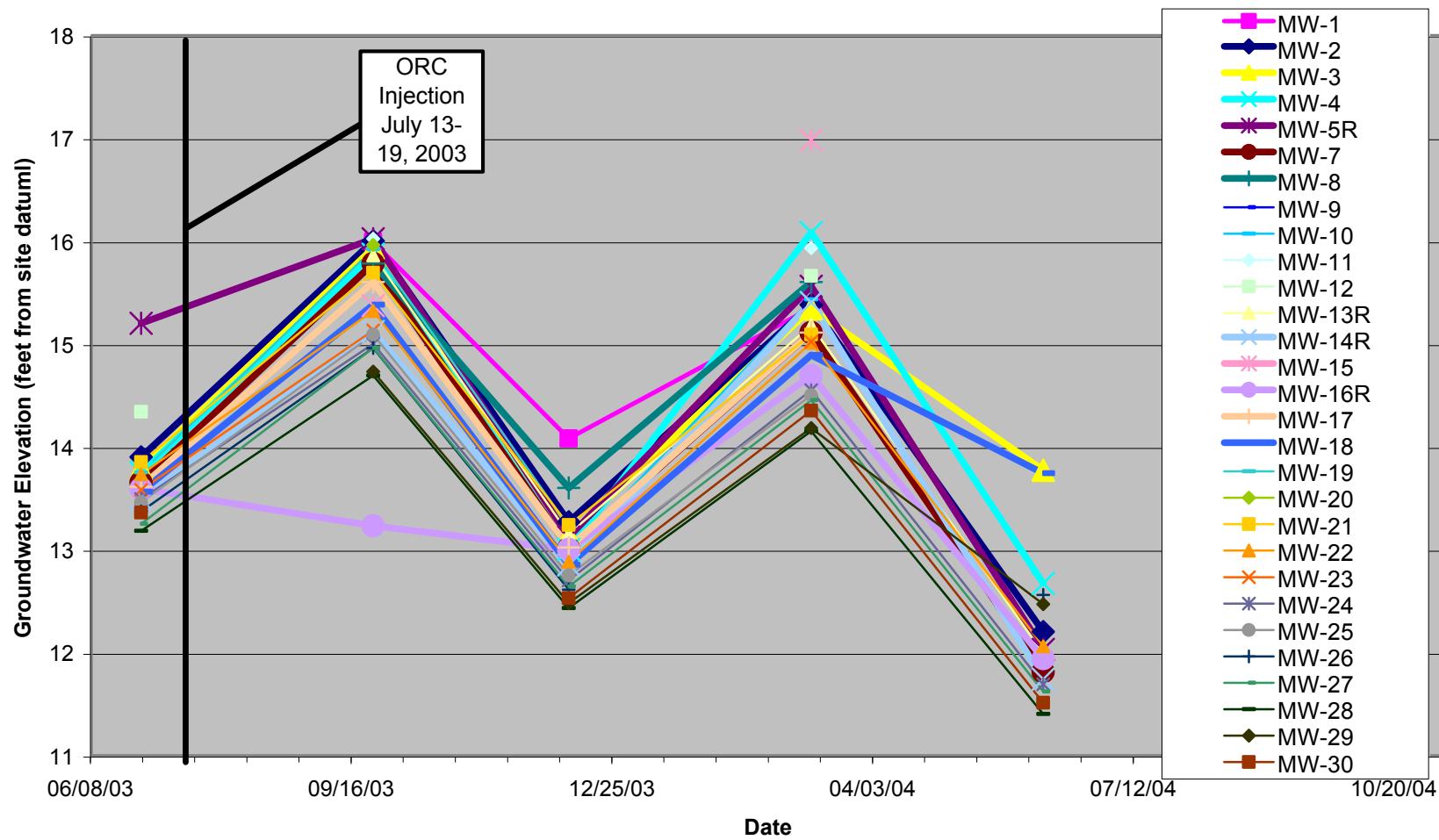
3.3.1 Expectations

Successful application of oxygen into the subsurface and the subsequent stimulation of aerobic biological degradation of petroleum compounds should result in predictable changes in site contaminant and geochemical parameters. Depending on site conditions, many of the following indications should be observed in the field indicating a successful application:

- Decrease in petroleum hydrocarbon concentrations in the source area and downgradient monitoring wells
- Decreased dissolved hydrogen concentrations
- Decreased methane concentrations

FIGURE 3-2

GROUNDWATER POTENTIOMETRIC SURFACE - JUNE 24, 2003 through JUNE 7, 2004
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FL



- Increased sulfate/decreased sulfide concentrations
- Decreased ferrous (dissolved) iron concentrations
- Decreased (dissolved) manganese concentrations
- Increased DO concentrations
- Increased ORP

As noted in many natural attenuation and bioremediation guidance documents, a decrease in the contaminant mass and/or concentrations and plume extent are the primarily lines of evidence that natural attenuation or enhanced bioremediation is effectively working. The secondary line of evidence includes favorable geochemical conditions observed in the field that support the biodegradation of the contaminants (ASTM, 1998, Weidemeier and Chapelle, 1998, USEPA, 1998). The following sections describe each of these lines of evidence as a means to determine the effectiveness of the remedial alternative evaluated in this treatability study.

3.3.2 Analytical Results

The laboratory analytical results and exceedances of applicable regulatory criteria for the groundwater samples collected during the treatability study are summarized in Table 3-2. Figure 3-3 illustrates the results for wells where at least one COC has exceeded its GCTL during the past five monitoring events. Those results which exceeded regulatory criteria are bolded as shown. The data for many of these wells is graphed on Figures 3-4 through 3-10. The laboratory data for all of the wells (both historical and recently collected data) are included in Appendix B.

3.3.2.1 Baseline and Historical Trends

Laboratory analytical results from the baseline sampling event indicated the following:

- Analyte concentrations in many of the sampled monitoring wells were greater than FDEP GCTLs, and in one well (MW-04), the concentrations exceeded the Natural Attenuation Default Source Concentrations (NADSCs).
- Total xylenes, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene were the only contaminants exceeding GCTLs at Site 1120.
- Several results from the baseline sample round were significantly less than historical detections and in many cases were less than GCTLs [e.g., wells MW-5R (Figure 3-5) MW-14R (Figure 3-6) MW-25 (Figure 3-9), and MW-26 (Figure 3-10)]. Based upon the time-concentrations plots, it is apparent that there was a decreasing concentration trend for most of the COCs in these wells prior to the implementation of the treatability study.

TABLE 3-2
SUMMARY OF LABORATORY DETECTED GROUNDWATER EXCEEDANCES
UST SITE 1120
OUTLYING LANDING FIELD BRONSON
PENSACOLA FLORIDA

PAGE 1 OF 7

WELL NAME SAMPLE ID SAMPLING EVENT COLLECTION DATE	GCTL ⁽¹⁾	NADSC ⁽²⁾	MW-1 BRN-1120-MW01				MW-2 BRN-1120-MW02				MW-4 BRN-1120-MW04						
			Baseline 06/24/03	1Q 09/25/03	2Q 12/10/03	3Q NS	4Q NS	Baseline 06/24/03	1Q 09/25/03	2Q 12/10/03	3Q 03/11/04	4Q 06/08/04	Baseline 06/24/03	1Q 09/25/03	2Q 12/10/03	3Q 03/11/04	4Q 06/08/04
VOCs⁽³⁾ (ug/L)																	
BENZENE	1	100	1 U	1 U	1 U	NS	NS	1 U	1 U	0.09 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ETHYLBENZENE	30	300	1 U	1 U	1 U	NS	NS	0.5 J	1 U	1 U	1 U	14	1 U	6	1 U	3	
M+P-XYLENES	NA	NA	1 U	2 U	2 U	NS	NS	1 U	2 U	2 U	2 U	28	2 U	12	2 U	3	
O-XYLENE	NA	NA	1 U	1 U	1 U	NS	NS	0.5 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
TOLUENE	40	400	1 U	1 U	1 U	NS	NS	1 U	1 U	0.3 J	1 U	1 U	1 U	1 U	1 U	1 U	
TOTAL XYLEMES	20	200	1 U	3 U	3 U	NS	NS	2	3 U	3 U	3 U	28	3 U	12	3 U	3	
PAHs⁽⁴⁾ (ug/L)																	
1-METHYLNAPHTHALENE	20	200	0.2 U	0.2 U	0.2 U	NS	NS	5.9	0.2 U	1.4	0.18 J	5.2	380	0.2 U	36	0.2 U	18
2-METHYLNAPHTHALENE	20	200	0.2 U	0.2 U	0.2 U	NS	NS	4.9	0.2 U	1.2	0.22	4.9	220	0.2 U	52	0.2 U	21
ACENAPHTHENE	20	200	0.2 U	0.2 U	0.2 U	NS	NS	1 U	0.2 U	0.2 U	0.2 U	0.2 U	110 U	0.2 U	7.7 U	0.2 U	0.3
ACENAPHTHYLENE	210	2100	0.2 U	0.2 U	0.2 U	NS	NS	1 U	0.2 U	0.2 U	0.2 U	0.2 U	110 U	0.2 U	7.7 U	0.2 U	0.2 U
BENZO(A)ANTHRACENE	0.2	20	0.2 U	0.2 U	0.2 U	NS	NS	1 U	0.2 U	0.2 U	0.2 U	0.2 U	110 U	0.2 U	7.7 U	0.2 U	0.2 U
BENZO(K)FLUORANTHENE	0.5	50	0.2 U	0.2 U	0.2 U	NS	NS	1 U	0.2 U	0.2 U	0.2 U	0.2 U	110 U	0.2 U	7.7 U	0.2 U	0.2 U
CHRYSENE	4.8	480	0.2 U	0.2 U	0.2 U	NS	NS	1 U	0.2 U	0.2 U	0.2 U	0.2 U	110 U	0.2 U	7.7 U	0.2 U	0.2 U
FLUORANTHENE	280	2800	0.2 U	0.2 U	0.2 U	NS	NS	1 U	0.2 U	0.2 U	0.2 U	0.2 U	110 U	0.2 U	7.7 U	0.2 U	0.2 U
FLUORENE	280	2800	0.2 U	0.2 U	0.2 U	NS	NS	1 U	0.2 U	0.2 U	0.2 U	0.092 J	110 U	0.2 U	7.7 U	0.2 U	0.52
NAPHTHALENE	20	200	0.2 U	0.2 U	0.2 U	NS	NS	3	0.2 U	1.3	0.54	2.6	440	0.2 U	42	0.2 U	20
PHENANTHRENE	210	2100	0.2 U	0.2 U	0.2 U	NS	NS	1 U	0.2 U	0.2 U	0.2 U	0.2 U	110 U	0.2 U	7.7 U	0.2 U	0.26
PYRENE	210	2100	0.2 U	0.2 U	0.2 U	NS	NS	1 U	0.2 U	0.2 U	0.2 U	0.2 U	110 U	0.2 U	7.7 U	0.2 U	0.2 U
TRPH⁽⁵⁾ (ug/L)																	
TOTAL PETROLEUM HYDROCARBONS	5000	50000	500 U	290 J	530 U	NS	NS	1600	500 U	1700 U	500 U	670 J	3200	720	1800 U	290 J	650

Notes:

440	Exceeds GCTL
	Exceeds GCTL and
440	NADSC

¹ Groundwater Cleanup Target Level as provided in Chapter 62-777, FAC.² Natural Attenuation Default Source Concentrations as provided in Chapter 62-770, FAC.³ VOCs (SW-846 8260B)⁴ PAHs = Polynuclear Aromatic Hydrocarbons (SW-846 8270 SIM)⁵ TRPH = Total Recoverable Petroleum Hydrocarbons (FDEC FL-PRO)

J = Estimated concentration

U = non-detect value

\mu g/L = micrograms per liter

mg/L = milligrams per liter

FL-PRO = Florida Petroleum Range Organics

NC = No Criteria

FAC = Florida Administrative Code

TB = Trip Blank

NA = Not analyzed for this parameter

NS = Not sampled

TABLE 3-2
SUMMARY OF LABORATORY DETECTED GROUNDWATER EXCEEDANCES
UST SITE 1120
OUTLYING LANDING FIELD BRONSON
PENSACOLA FLORIDA

PAGE 2 OF 7

WELL NAME SAMPLE ID SAMPLING EVENT COLLECTION DATE	GCTL ⁽¹⁾	NADSC ⁽²⁾	MW-5R BRN-1120-MW05R						MW-7 BRN-1120-MW07						MW-8 BRN-1120-MW08					
			Baseline 06/24/03	1Q 09/25/03	2Q 12/10/03	3Q 03/11/04	4Q 06/08/04	Baseline 06/25/03	1Q 09/26/03	2Q 12/11/03	3Q 03/11/04	4Q 06/08/04	Baseline NS	1Q 09/25/03	2Q NS	3Q 03/11/04	4Q NS			
VOCs⁽³⁾ (ug/L)																				
BENZENE	1	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	NS	1 U	NS		
ETHYLBENZENE	30	300	0.3 J	1 U	10	1 U	12	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	NS	1 U	NS		
M+p-XYLENES	NA	NA	1 U	2 U	30	2 U	28	1 U	2 U	2 U	2 U	2 U	2 U	NS	2 U	NS	2 U	NS		
O-XYLENE	NA	NA	1 U	1 U	1 U	1 U	0.6 J	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	NS	1 U	NS		
TOLUENE	40	400	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	NS	1 U	NS		
TOTAL XYLEMES	20	200	1 U	3 U	30	3 U	28	1 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	NS	3 U	NS		
PAHs⁽⁴⁾ (ug/L)																				
1-METHYLNAPHTHALENE	20	200	2.2	0.2 U	34	0.2 U	37	0.2 U	0.2 U	0.37	0.094 J	0.84	NS	0.2 U	NS	0.2 U	NS			
2-METHYLNAPHTHALENE	20	200	1.3	0.2 U	43	0.2 U	44	0.2 U	0.2 U	0.25	0.098 J	0.64	NS	0.2 U	NS	0.2 U	NS			
ACENAPHTHENE	20	200	0.2 U	0.2 U	7.6 U	0.2 U	0.47	0.2 U	0.2 U	0.2 U	0.2 U	0.1 J	NS	0.2 U	NS	0.2 U	NS			
ACENAPHTHYLENE	210	2100	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.051	0.2 U	0.21 U	NS	0.2 U	NS	0.2 U	NS			
BENZO(A)ANTHRACENE	0.2	20	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	NS	0.2 U	NS	0.2 U	NS			
BENZO(K)FLUORANTHENE	0.5	50	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	NS	0.2 U	NS	0.2 U	NS			
CHRYSENE	4.8	480	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	NS	0.2 U	NS	0.2 U	NS			
FLUORANTHENE	280	2800	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	NS	0.2 U	NS	0.2 U	NS			
FLUORENE	280	2800	0.2 U	0.2 U	7.6 U	0.2 U	0.85	0.2 U	0.2 U	0.11	0.2 U	0.3	NS	0.2 U	NS	0.2 U	NS			
NAPHTHALENE	20	200	2.1	0.2 U	48	0.2 U	46	0.2 U	0.2 U	0.2 U	0.2 U	0.12 J	NS	0.2 U	NS	0.2 U	NS			
PHENANTHRENE	210	2100	0.2 U	0.2 U	7.6 U	0.2 U	0.38	0.2 U	0.2 U	0.2 U	0.2 U	0.18 J	NS	0.2 U	NS	0.2 U	NS			
PYRENE	210	2100	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	NS	0.2 U	NS	0.2 U	NS			
TRPH⁽⁵⁾ (ug/L)																				
TOTAL PETROLEUM HYDROCARBONS	5000	50000	620	890	1800 U	350 J	1200	500 U	500 U	500 U	310 J	NS	500 U	NS	500 U	NS				

Notes:

440	Exceeds GCTL
440	Exceeds GCTL and NADSC

¹ Groundwater Cleanup Target Level as provided in Chapter 62-777, FAC.

² Natural Attenuation Default Source Concentrations as provided in Chapter 62-770, FAC.

³ VOCs (SW-846 8260B)

⁴ PAHs = Polynuclear Aromatic Hydrocarbons (SW-846 8270 SIM)

⁵ TRPH = Total Recoverable Petroleum Hydrocarbons (FDEP FL-PRO)

J = Estimated concentration

U = non-detect value

µg/L = micrograms per liter

mg/L = milligrams per liter

FL-PRO = Florida Petroleum Range Organics

NC = No Criteria

FAC = Florida Administrative Code

TB = Trip Blank

NA = Not analyzed for this parameter

NS = Not sampled

TABLE 3-2
SUMMARY OF LABORATORY DETECTED GROUNDWATER EXCEEDANCES
UST SITE 1120
OUTLYING LANDING FIELD BRONSON
PENSACOLA FLORIDA

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WELL NAME SAMPLE ID SAMPLING EVENT COLLECTION DATE	GCTL ⁽¹⁾	NADSC ⁽²⁾	MW-13R BRN-1120-MW13R					MW-14R BRN-1120-MW14R					MW-16R BRN-1120-MW16R				
			Baseline 06/25/03	1Q 09/25/03	2Q 12/10/03	3Q 03/11/04	4Q NS	Baseline 06/25/03	1Q 09/25/03	2Q 12/10/03	3Q 03/10/04	4Q 06/07/04	Baseline 06/25/03	1Q 09/24/03	2Q 12/10/03	3Q 03/10/04	4Q 06/07/04
VOCS⁽³⁾ (ug/L)																	
BENZENE	1	100	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ETHYLBENZENE	30	300	1 U	1 U	1 U	1 U	NS	16	3	9	23	11	1 U	0.7 J	1 U	1 U	1 U
M+p-XYLENES	NA	NA	1 U	2 U	2 U	2 U	NS	32	5	12	51	10	1 U	3	2 U	2 U	2 U
O-XYLENE	NA	NA	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	0.6 J	1 U	1 U	1 U	1 U	1 U	1 U
TOLUENE	40	400	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLEMES	20	200	1 U	3 U	3 U	3 U	NS	32	5	12	51	10	1 U	3	3 U	3 U	3 U
PAHS⁽⁴⁾ (ug/L)																	
1-METHYLNAPHTHALENE	20	200	0.21 U	0.2 U	0.2 U	0.2 U	NS	160	76	130	160	140	2.3	5	13	0.099 J	5.6
2-METHYLNAPHTHALENE	20	200	0.21 U	0.2 U	0.2 U	0.2 U	NS	150	97	200	210	200	5.6	6.2	23	0.2 J	7
ACENAPHTHENE	20	200	0.21 U	0.2 U	0.2 U	0.2 U	NS	44 U	7.5 U	19 U	2.6	1.5	0.97 U	0.75 U	0.98 J	0.2 U	0.19 J
ACENAPHTHYLENE	210	2100	0.21 U	0.2 U	0.2 U	0.2 U	NS	44 U	7.5 U	19 U	0.2 U	0.2 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
BENZO(A)ANTHRACENE	0.2	20	0.21 U	0.2 U	0.2 U	0.2 U	NS	44 U	7.5 U	19 U	0.2 U	0.2 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
BENZO(K)FLUORANTHENE	0.5	50	0.21 U	0.2 U	0.2 U	0.2 U	NS	44 U	7.5 U	19 U	0.2 U	0.2 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
CHRYSENE	4.8	480	0.21 U	0.2 U	0.2 U	0.2 U	NS	44 U	7.5 U	19 U	0.2 U	0.2 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
FLUORANTHENE	280	2800	0.21 U	0.2 U	0.2 U	0.2 U	NS	44 U	7.5 U	19 U	0.2 U	0.2 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
FLUORENE	280	2800	0.21 U	0.2 U	0.2 U	0.2 U	NS	44 U	2.5 J	19 U	4.1 E	2.9	0.97 U	0.75 U	1.1 J	0.2 U	0.48
NAPHTHALENE	20	200	0.21 U	0.2 U	0.2 U	0.2 U	NS	52	41	98	160	100	0.97 U	1.4	1.9 U	0.2 U	0.2
PHENANTHRENE	210	2100	0.21 U	0.2 U	0.2 U	0.2 U	NS	44 U	7.5 U	19 U	2.2	2.2	0.97 U	0.75 U	1.9 U	0.2 U	0.12 J
PYRENE	210	2100	0.21 U	0.2 U	0.2 U	0.2 U	NS	44 U	7.5 U	19 U	0.2 U	0.2 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
TRPH⁽⁵⁾ (ug/L)																	
TOTAL PETROLEUM HYDROCARBONS	5000	50000	510 U	500 U	280 J	500 U	NS	3800	4600	4000	2500	2200	400 J	360 J	1100 U	500 U	420 J

Notes:

440	Exceeds GCTL
440	Exceeds GCTL and NADSC

¹ Groundwater Cleanup Target Level as provided in Chapter 62-777, FAC.

² Natural Attenuation Default Source Concentrations as provided in Chapter 62-770, FAC.

³ VOCs (SW-846 8260B)

⁴ PAHs = Polynuclear Aromatic Hydrocarbons (SW-846 8270 SIM)

⁵ TRPH = Total Recoverable Petroleum Hydrocarbons (FDEP FL-PRO)

J = Estimated concentration

U = non-detect value

μg/L = micrograms per liter

mg/L = milligrams per liter

FL-PRO = Florida Petroleum Range Organics

NC = No Criteria

FAC = Florida Administrative Code

TB = Trip Blank

NA = Not analyzed for this parameter

NS = Not sampled

**TABLE 3-2
SUMMARY OF LABORATORY DETECTED GROUNDWATER EXCEEDANCES
UST SITE 1120
OUTLYING LANDING FIELD BRONSON
PENSACOLA FLORIDA**

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WELL NAME SAMPLE ID SAMPLING EVENT COLLECTION DATE	GCTL ⁽¹⁾	NADSC ⁽²⁾	MW-17 BRN-1120-MW17					MW-18 BRN-1120-MW18					MW-24 BRN-1120-MW24				
			Baseline 06/26/03	1Q 09/26/03	2Q 12/11/03	3Q 03/11/04	4Q NS	Baseline 06/26/03	1Q 09/26/03	2Q 12/11/03	3Q 03/10/04	4Q 06/08/04	Baseline 06/25/03	1Q 09/24/03	2Q 12/10/03	3Q 03/10/04	4Q 06/07/04
VOCs⁽³⁾ (ug/L)																	
BENZENE	1	100	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ETHYLBENZENE	30	300	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
M+p-XYLENES	NA	NA	1 U	2 U	2 U	2 U	NS	1 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	2 U	2 U
O-XYLENE	NA	NA	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOLUENE	40	400	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLEMES	20	200	1 U	3 U	3 U	3 U	NS	1 U	3 U	3 U	3 U	3 U	1 U	3 U	3 U	3 U	3 U
PAHs⁽⁴⁾ (ug/L)																	
1-METHYLNAPHTHALENE	20	200	0.11 J	0.2 U	0.096	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	6.7	0.2 U	26	4.2	8.6
2-METHYLNAPHTHALENE	20	200	0.092 J	0.2 U	0.2 U	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	5.9	0.12 J	50	6	16
ACENAPHTHENE	20	200	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.17 J	7.5 U	0.3	0.36
ACENAPHTHYLENE	210	2100	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.74 J	0.2 U	7.5 U	0.2 U	0.2 U
BENZO(A)ANTHRACENE	0.2	20	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.13 J	7.5 U	0.2 U	0.2 U
BENZO(K)FLUORANTHENE	0.5	50	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.16 J	7.5 U	0.2 U	0.2 U
CHRYSENE	4.8	480	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	7.5 U	0.2 U	0.2 U
FLUORANTHENE	280	2800	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	7.5 U	0.2 U	0.2 U
FLUORENE	280	2800	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.7 J	0.2 U	2.9 J	0.39	1.1
NAPHTHALENE	20	200	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.13 J	7.5 U	0.08 J	0.36
PHENANTHRENE	210	2100	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	7.5 U	0.17 J	0.44
PYRENE	210	2100	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.19 J	7.5 U	0.2 U	0.2 U
TRPH⁽⁵⁾ (ug/L)																	
TOTAL PETROLEUM HYDROCARBONS	5000	50000	400 J	500 U	310 U	500 U	NS	1300	500 U	570 U	500 U	500 U	1200	500 U	2200 U	350 J	690

Notes:

440 Exceeds GCTL
440 Exceeds GCTL and
NADSC

¹ Groundwater Cleanup Target Level as provided in Chapter 62-777, FAC.² Natural Attenuation Default Source Concentrations as provided in Chapter 62-770, FAC.³ VOCs (SW-846 8260B)⁴ PAHs = Polynuclear Aromatic Hydrocarbons (SW-846 8270 SIM)⁵ TRPH = Total Recoverable Petroleum Hydrocarbons (FDEP FL-PRO)

J = Estimated concentration

U = non-detect value

µg/L = micrograms per liter

mg/L = milligrams per liter

FL-PRO = Florida Petroleum Range Organics

NC = No Criteria

FAC = Florida Administrative Code

TB = Trip Blank

NA = Not analyzed for this parameter

NS = Not sampled

TABLE 3-2
SUMMARY OF LABORATORY DETECTED GROUNDWATER EXCEEDANCES
UST SITE 1120
OUTLYING LANDING FIELD BRONSON
PENSACOLA FLORIDA

PAGE 5 OF 7

WELL NAME SAMPLE ID SAMPLING EVENT COLLECTION DATE	GCTL ⁽¹⁾	NADSC ⁽²⁾	MW-25 BRN-1120-MW25					MW-26 BRN-1120-MW26					MW-27 BRN-1120-MW27				
			Baseline 06/25/03	1Q 09/25/03	2Q 12/11/03	3Q 03/10/04	4Q NS	Baseline 06/26/03	1Q 09/24/03	2Q 12/11/03	3Q 03/10/04	4Q 06/07/04	Baseline 06/26/03	1Q 09/25/03	2Q 12/10/03	3Q 03/10/04	4Q 06/08/04
VOCs⁽³⁾ (ug/L)																	
BENZENE	1	100	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ETHYLBENZENE	30	300	1	1 U	0.8 U	0.9 J	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
M+P-XYLEMES	NA	NA	1 U	2 U	0.4 J	2	NS	1 U	2 U	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U
O-XYLENE	NA	NA	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOLUENE	40	400	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLEMES	20	200	1 U	3 U	3 U	2 J	NS	1 U	3 U	3 U	3 U	3 U	1 U	3 U	3 U	3 U	3 U
PAHs⁽⁴⁾ (ug/L)																	
1-METHYLNAPHTHALENE	20	200	7.3	0.2 U	17	14	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-METHYLNAPHTHALENE	20	200	20	0.11 J	56	18	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ACENAPHTHENE	20	200	1.9 U	0.2 U	7.7 U	0.24	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ACENAPHTHYLENE	210	2100	1.9 U	0.2 U	7.7 U	0.2 U	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BENZO(A)ANTHRACENE	0.2	20	1.9 U	0.2 U	7.7 U	0.2 U	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BENZO(K)FLUORANTHENE	0.5	50	1.9 U	0.2 U	7.7 U	0.2 U	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHRYSENE	4.8	480	1.9 U	0.2 U	7.7 U	0.2 U	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 J	0.2 U	0.2 U
FLUORANTHENE	280	2800	1.9 U	0.2 U	7.7 U	0.2 U	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.17 J	0.2 U	0.2 U	0.2 U
FLUORENE	280	2800	1.9 U	0.2 U	7.7 U	0.36	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.17 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	20	200	6	0.2 U	16	6.4	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
PHENANTHRENE	210	2100	1.9 U	0.2 U	7.7 U	0.11 J	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.077 J	0.2 U	0.2 U	0.2 U
PYRENE	210	2100	1.9 U	0.2 U	7.7 U	0.2 U	NS	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.22	0.2 U	0.2 U	0.2 U
TRPH⁽⁵⁾ (ug/L)																	
TOTAL PETROLEUM HYDROCARBONS	5000	50000	950	500 U	1300 U	450 J	NS	520 U	500 U	500 U	500 U	500 U	500 U	330 U	500 U	500 U	500 U

Notes:

440	Exceeds GCTL
	Exceeds GCTL and NADSC
440	

¹ Groundwater Cleanup Target Level as provided in Chapter 62-777, FAC.² Natural Attenuation Default Source Concentrations as provided in Chapter 62-770, FAC.³ VOCs (SW-846 8260B)⁴ PAHs = Polynuclear Aromatic Hydrocarbons (SW-846 8270 SIM)⁵ TRPH = Total Recoverable Petroleum Hydrocarbons (FDEP FL-PRO)

J = Estimated concentration

U = non-detect value

μg/L = micrograms per liter

mg/L = milligrams per liter

FL-PRO = Florida Petroleum Range Organics

NC = No Criteria

FAC = Florida Administrative Code

TB = Trip Blank

NA = Not analyzed for this parameter

NS = Not sampled

TABLE 3-2
SUMMARY OF LABORATORY DETECTED GROUNDWATER EXCEEDANCES
UST SITE 1120
OUTLYING LANDING FIELD BRONSON
PENSACOLA FLORIDA

PAGE 6 OF 7

WELL NAME SAMPLE ID SAMPLING EVENT COLLECTION DATE	GCTL ⁽¹⁾	NADSC ⁽²⁾	MW-28 BRN-1120-MW28				MW-29 BRN-1120-MW29				MW-30 OLFB1120MW30					
			Baseline 06/26/03	1Q 09/25/03	2Q 12/10/03	3Q 03/10/04	4Q 06/08/04	Baseline 09/25/03	1Q 12/10/03	2Q 03/10/04	3Q 06/08/04	Baseline NS	1Q NS	2Q NS	3Q NS	4Q 06/07/04
VOCs⁽³⁾ (µg/L)																
BENZENE	1	100	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	NS	NS	NS	NS	1 U
ETHYLBENZENE	30	300	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	0.3 J	0.4 J	NS	NS	NS	1 U
M+P-XYLENES	NA	NA	1 U	2 U	2 U	2 U	2 U	NS	2 U	2 U	2 U	2 U	NS	NS	NS	2 U
O-XYLENE	NA	NA	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	NS	NS	NS	1 U
TOLUENE	40	400	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	0.2 J	1 U	NS	NS	NS	1 U
TOTAL XYLENES	20	200	1 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	NS	NS	NS	3 U
PAHs⁽⁴⁾ (µg/L)																
1-METHYLNAPHTHALENE	20	200	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.085 J	NS	NS	NS	0.33
2-METHYLNAPHTHALENE	20	200	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	1.2	0.97	2.7	NS	NS	NS	3.6
ACENAPHTHENENE	20	200	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.12 J	0.21	NS	NS	NS	0.34
ACENAPHTHYLENE	210	2100	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	NS	NS	NS	0.2 U
BENZO(A)ANTHRACENE	0.2	20	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	NS	NS	NS	0.2 U
BENZO(K)FLUORANTHENE	0.5	50	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	NS	NS	NS	0.2 U
CHRYSENE	4.8	480	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	NS	NS	NS	0.2 U
FLUORANTHENE	280	2800	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	NS	NS	NS	0.2 U
FLUORENE	280	2800	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.11 J	0.19 J	0.38	NS	NS	NS	1
NAPHTHALENE	20	200	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.12 J	0.52	1.6	NS	NS	NS	0.29
PHENANTHRENE	210	2100	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.1 J	0.086 J	NS	NS	NS	0.43
PYRENE	210	2100	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	NS	NS	NS	0.2 U
TRPH⁽⁵⁾ (µg/L)																
TOTAL PETROLEUM HYDROCARBONS	5000	50000	500 U	500 U	340 U	500 U	500 U	NS	500 U	500 U	500 U	300 J	NS	NS	NS	490

Notes:

440	Exceeds GCTL
440	Exceeds GCTL and NADSC

¹ Groundwater Cleanup Target Level as provided in Chapter 62-777, FAC.

² Natural Attenuation Default Source Concentrations as provided in Chapter 62-770, FAC.

³ VOCs (SW-846 8260B)

⁴ PAHs = Polynuclear Aromatic Hydrocarbons (SW-846 8270 SIM)

⁵ TRPH = Total Recoverable Petroleum Hydrocarbons (FDEP FL-PRO)

J = Estimated concentration

U = non-detect value

µg/L = micrograms per liter

mg/L = milligrams per liter

FL-PRO = Florida Petroleum Range Organics

NC = No Criteria

FAC = Florida Administrative Code

TB = Trip Blank

NA = Not analyzed for this parameter

NS = Not sampled

TABLE 3-2
SUMMARY OF LABORATORY DETECTED GROUNDWATER EXCEEDANCES
UST SITE 1120
OUTLYING LANDING FIELD BRONSON
PENSACOLA FLORIDA

PAGE 7 OF 7

WELL NAME SAMPLE ID SAMPLING EVENT COLLECTION DATE	GCTL ⁽¹⁾	NADSC ⁽²⁾	MW-32 BRN-1120-MW32				MW-35 BRN-1120-MW35				
			Baseline 06/26/03	1Q NS	2Q NS	3Q NS	4Q NS	Baseline 06/26/03	1Q 09/25/03	2Q 12/10/03	3Q 03/10/04
VOCs⁽³⁾ (ug/L)											
BENZENE	1	100	1 U	NS	NS	NS	NS	1 U	1 U	1 U	1 U
ETHYLBENZENE	30	300	1 U	NS	NS	NS	NS	1 U	1 U	1 U	1 U
M+P-XYLENES	NA	NA	1 U	NS	NS	NS	NS	1 U	2 U	2 U	2 U
O-XYLENE	NA	NA	1 U	NS	NS	NS	NS	1 U	1 U	1 U	1 U
TOLUENE	40	400	1 U	NS	NS	NS	NS	1 U	1 U	1 U	1 U
TOTAL XYLEMES	20	200	1 U	NS	NS	NS	NS	1 U	3 U	3 U	3 U
PAHs⁽⁴⁾ (ug/L)											
1-METHYLNAPHTHALENE	20	200	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
2-METHYLNAPHTHALENE	20	200	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
ACENAPHTHENE	20	200	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
ACENAPHTHYLENE	210	2100	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
BENZO(A)ANTHRACENE	0.2	20	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
BENZO(K)FLUORANTHENE	0.5	50	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
CHRYSENE	4.8	480	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
FLUORANTHENE	280	2800	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
FLUORENE	280	2800	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	20	200	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
PHENANTHRENE	210	2100	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
PYRENE	210	2100	0.2 U	NS	NS	NS	NS	0.2 U	0.2 U	0.2 U	0.2 U
TRPH⁽⁵⁾ (ug/L)											
TOTAL PETROLEUM HYDROCARBONS	5000	50000	500 U	NS	NS	NS	NS	500 U	500 U	350 U	500 U

Notes:

440

Exceeds GCTL
Exceeds GCTL and

440

NADSC

¹ Groundwater Cleanup Target Level as provided in Chapter 62-777, FAC.

² Natural Attenuation Default Source Concentrations as provided in Chapter 62-770, FAC.

³ VOCs (SW-846 8260B)

⁴ PAHs = Polynuclear Aromatic Hydrocarbons (SW-846 8270 SIM)

⁵ TRPH = Total Recoverable Petroleum Hydrocarbons (FDEP FL-PRO)

J = Estimated concentration

U = non-detect value

µg/L = micrograms per liter

mg/L = milligrams per liter

FL-PRO = Florida Petroleum Range Organics

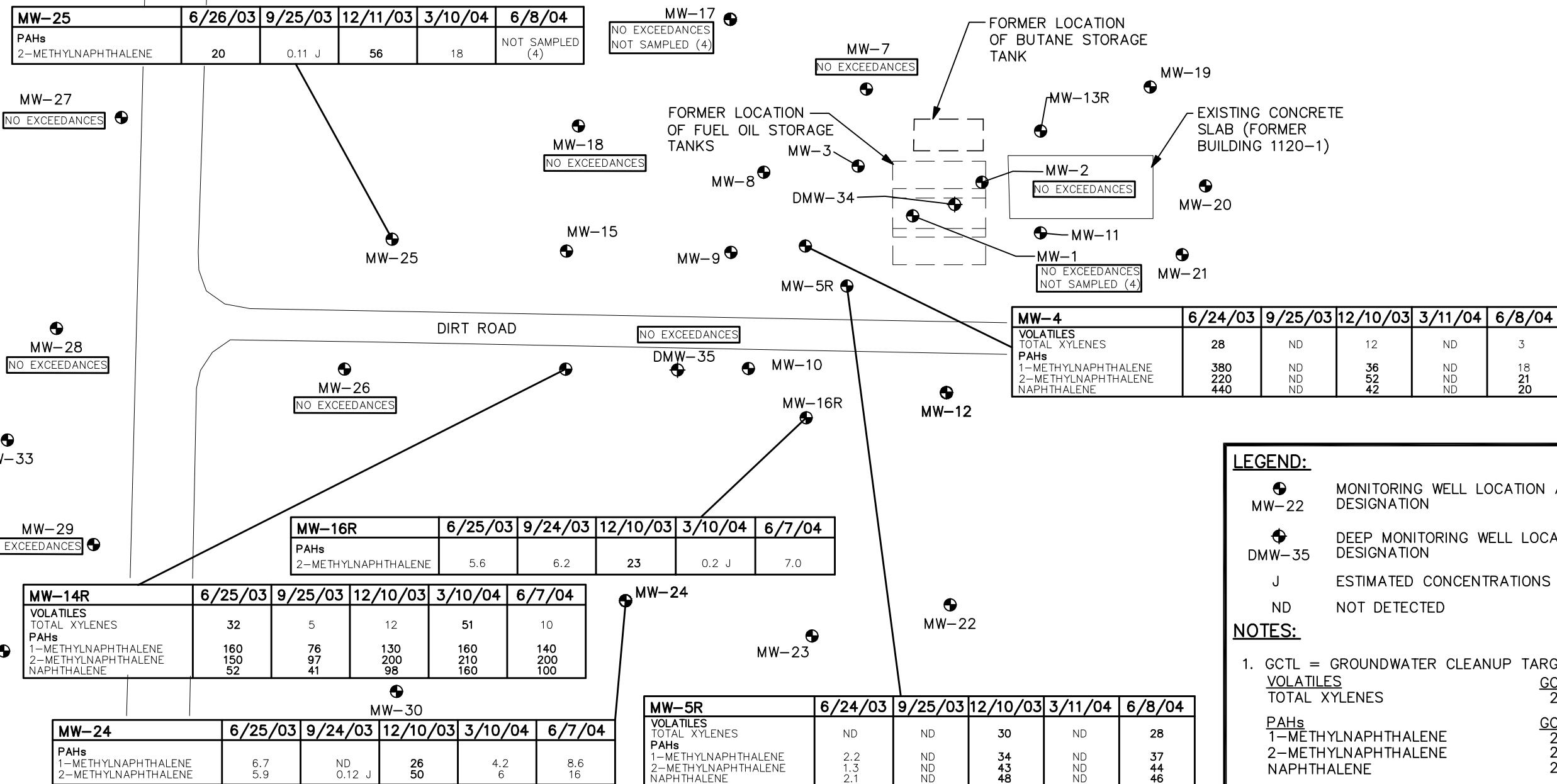
NC = No Criteria

FAC = Florida Administrative Code

TB = Trip Blank

NA = Not analyzed for this parameter

NS = Not sampled

**LEGEND:**

- **MW-22** MONITORING WELL LOCATION AND DESIGNATION
- **DMW-35** DEEP MONITORING WELL LOCATION AND DESIGNATION
- J ESTIMATED CONCENTRATIONS
- ND NOT DETECTED

NOTES:

1. GCTL = GROUNDWATER CLEANUP TARGET LEVEL
VOLATILES GCTL
TOTAL XYLENES 20
2. ALL CONCENTRATIONS REPORTED IN MICROGRAMS/LITER (ug/L)
3. EXCEEDANCES OF GCTLs ARE IN BOLD
4. SEE TABLE 3-1

0 40 80

APPROXIMATE SCALE IN FEET

DRAWN BY DATE
DM 8/5/04
CHECKED BY DATE
KWH 8/5/04
REVISED BY DATE
SCALE AS NOTED



GROUNDWATER EXCEEDANCES
UST SITE 1120
TREATABILITY STUDY EVALUATION REPORT
OUTLYING LANDING FIELD BRONSON
PENSACOLA, FLORIDA

CONTRACT NO.
5967
OWNER NO.
0000
APPROVED BY DATE
DRAWING NO.
FIGURE 3-3 REV.
0

FIGURE 3-4
HISTORICAL GROUNDWATER EXCEEDANCES IN MW-4
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

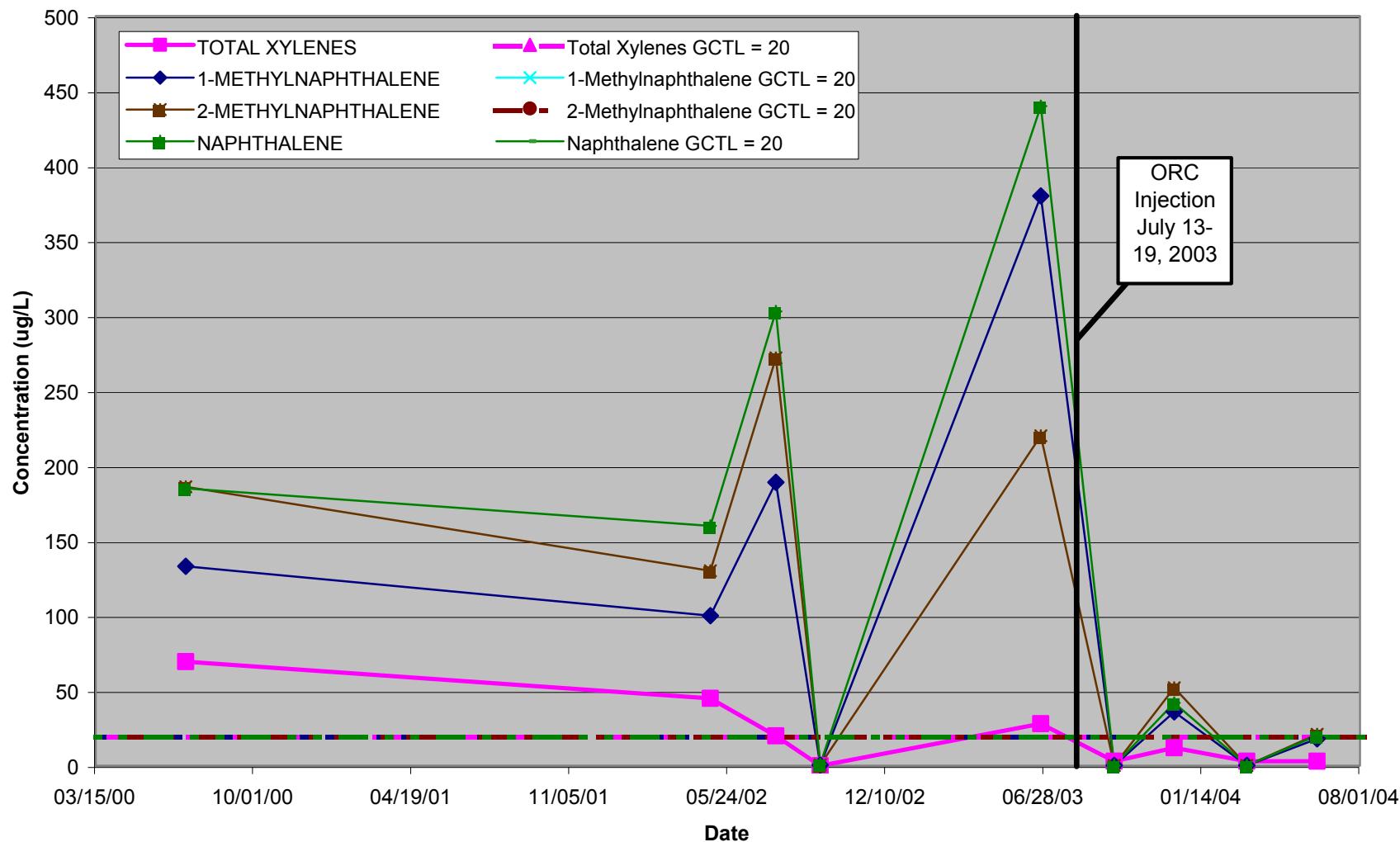


FIGURE 3-5
HISTORICAL GROUNDWATER EXCEEDANCES IN MW-5 AND MW-5R
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

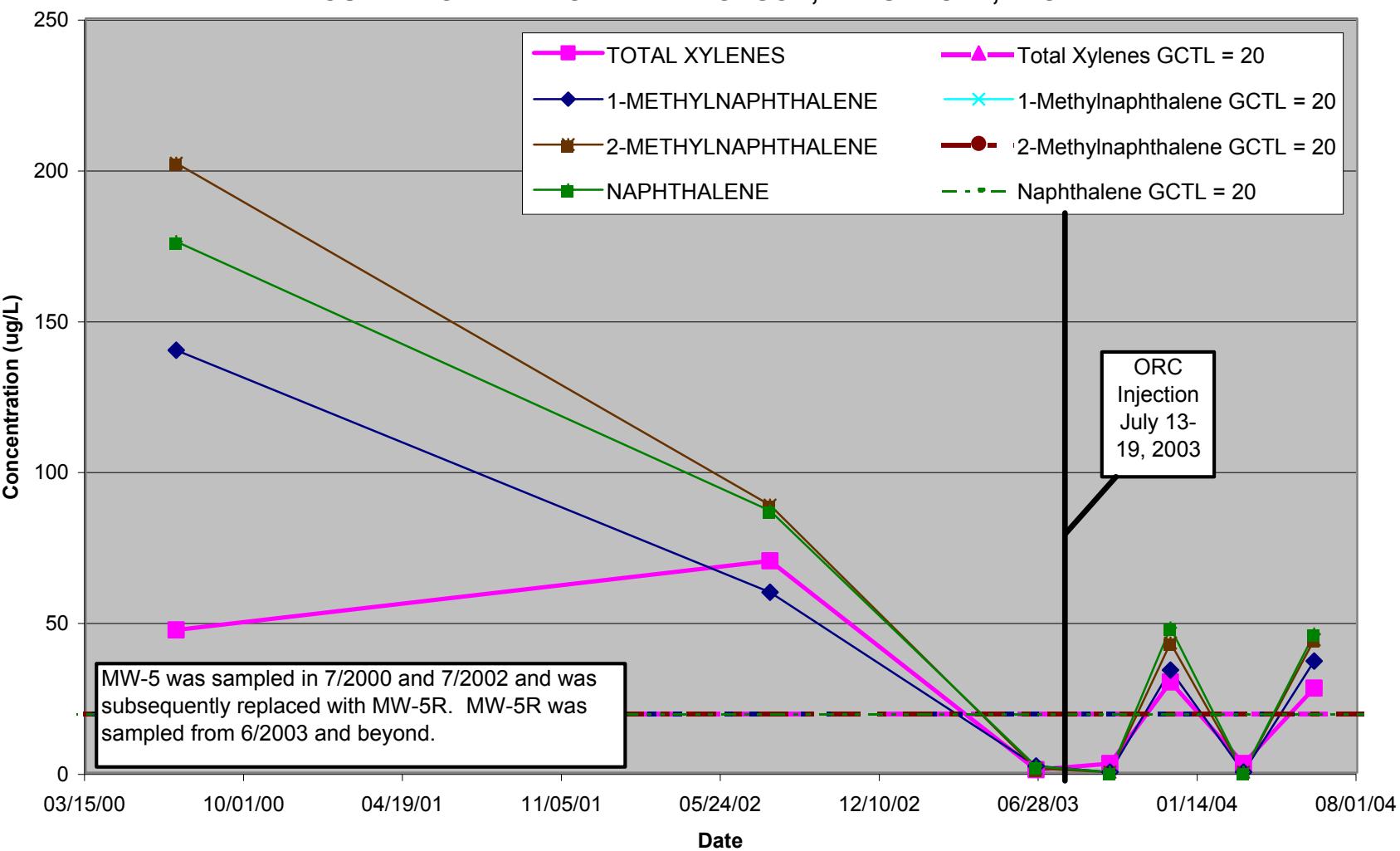


FIGURE 3-6
HISTORICAL GROUNDWATER EXCEEDANCES IN MW-14R
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

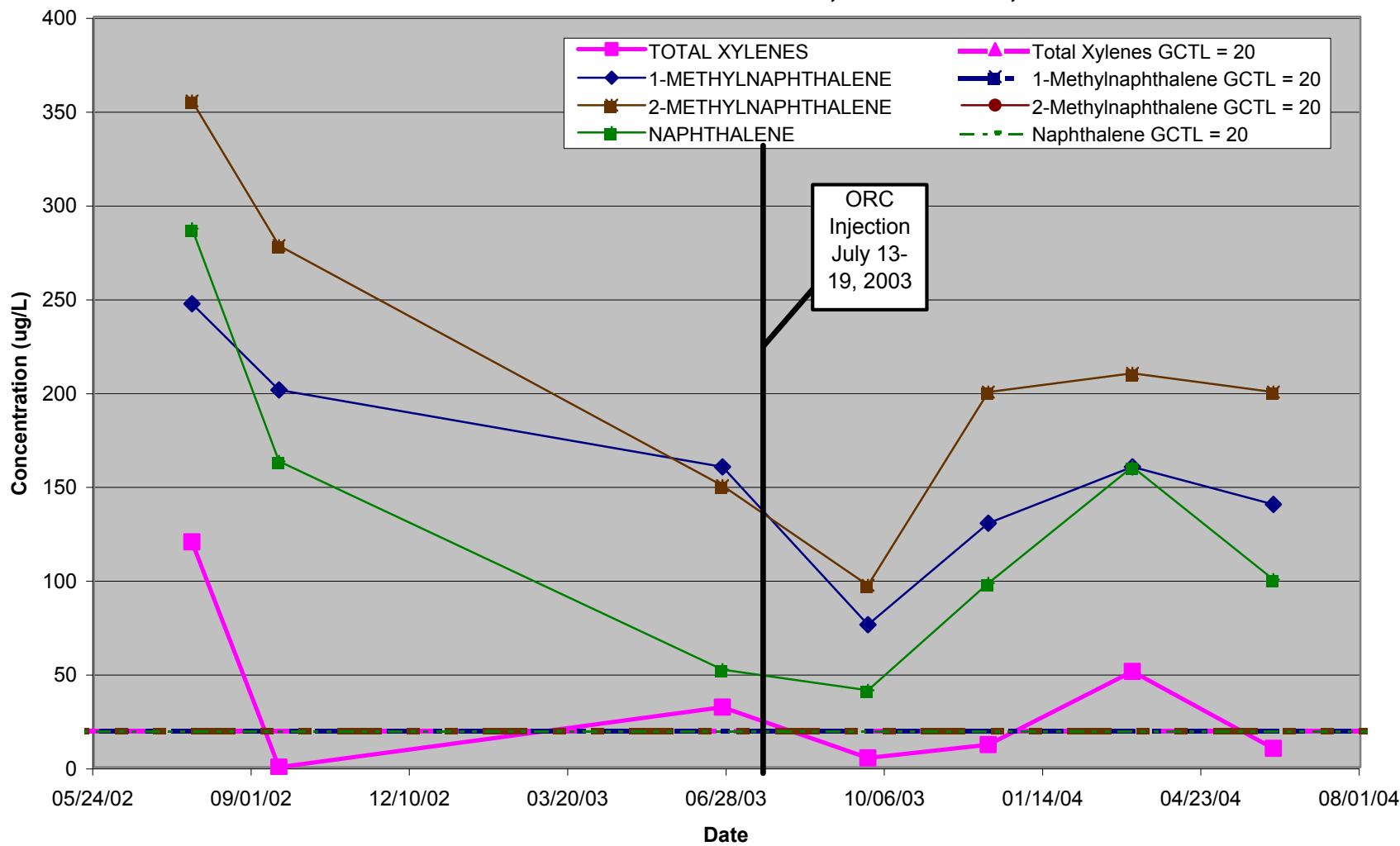


FIGURE 3-7
HISTORICAL GROUNDWATER EXCEEDANCES IN MW-16R
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

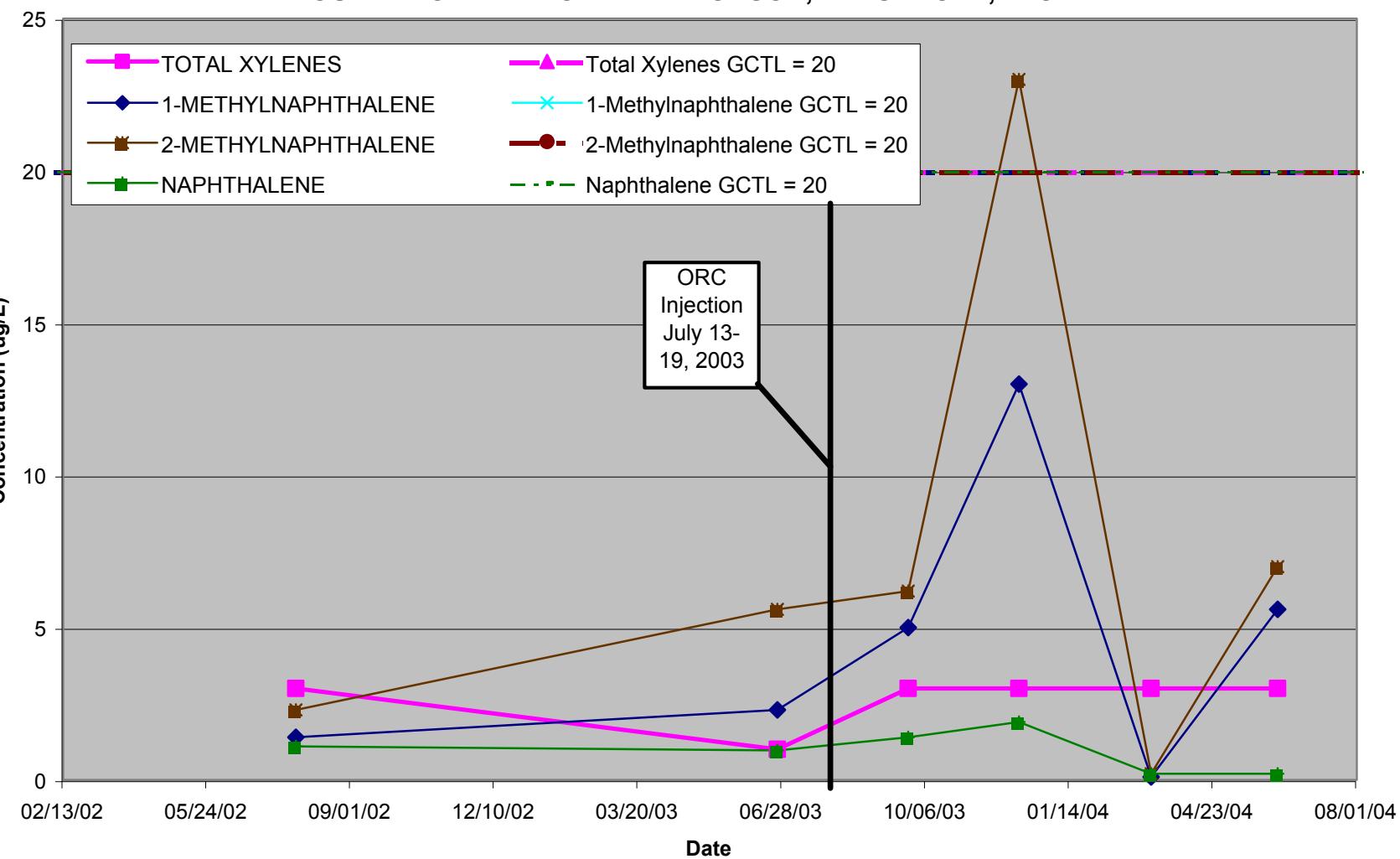


FIGURE 3-8
HISTORICAL GROUNDWATER EXCEEDANCES IN MW-24
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

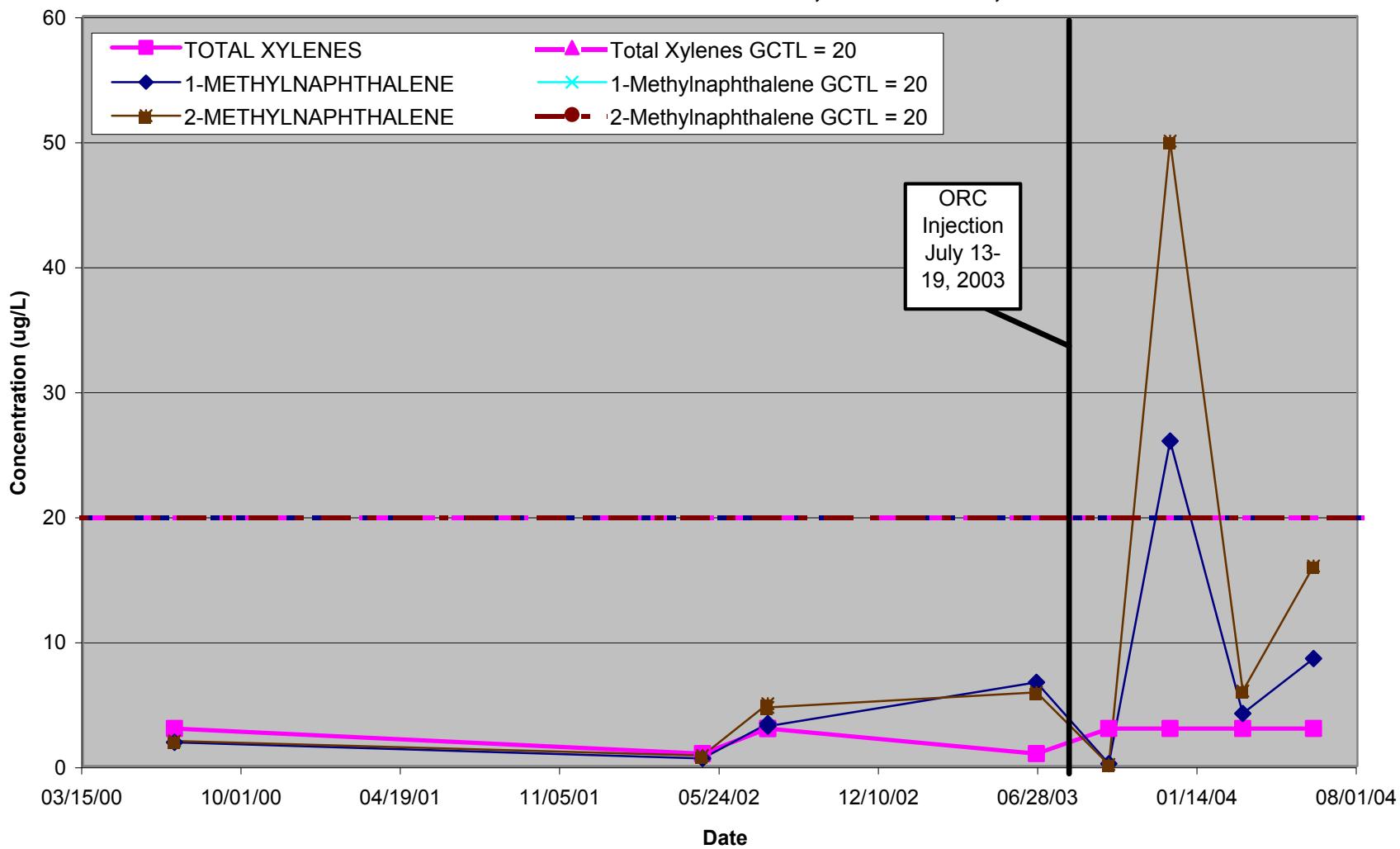


FIGURE 3-9
HISTORICAL GROUNDWATER EXCEEDANCES IN MW-25
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

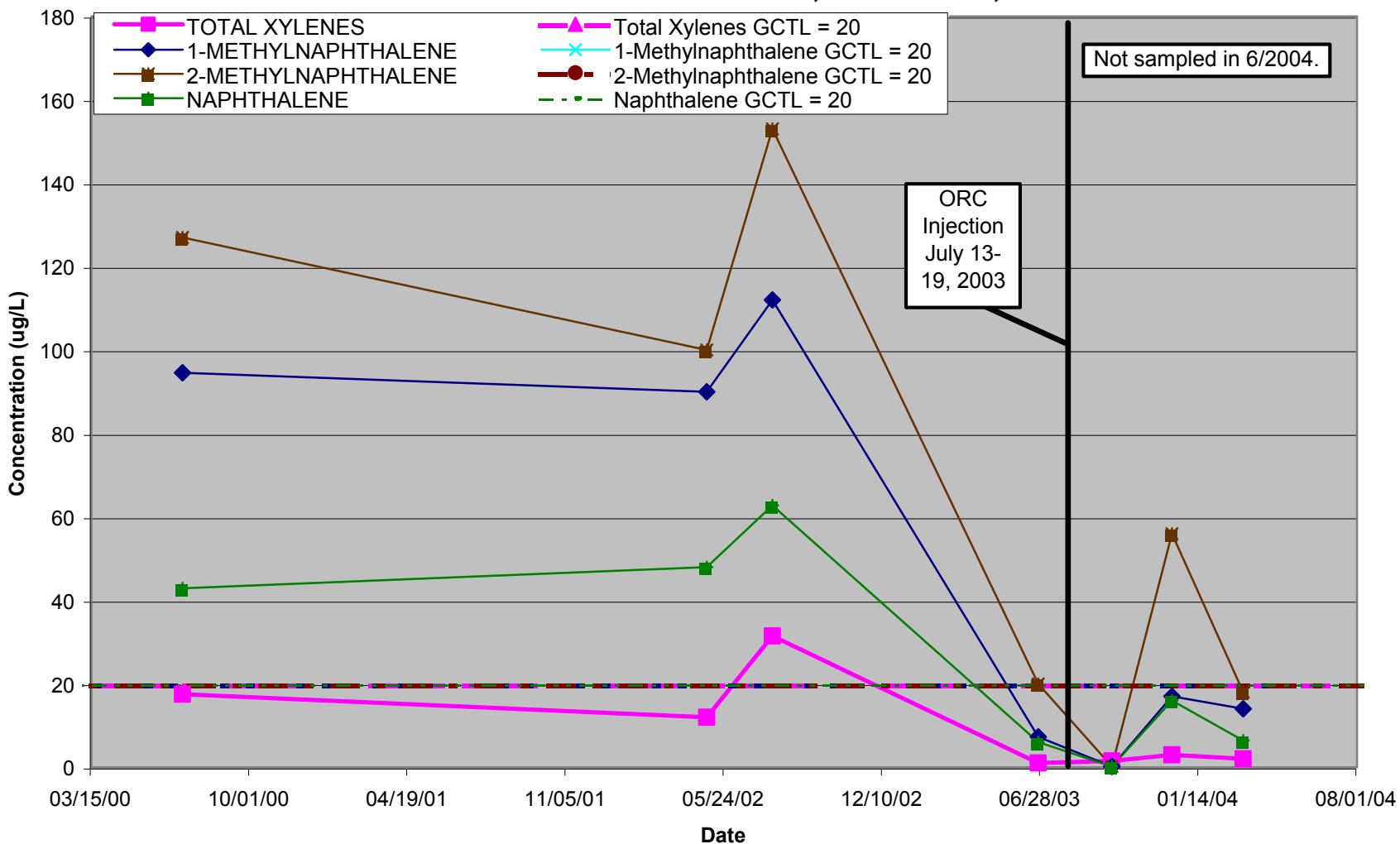
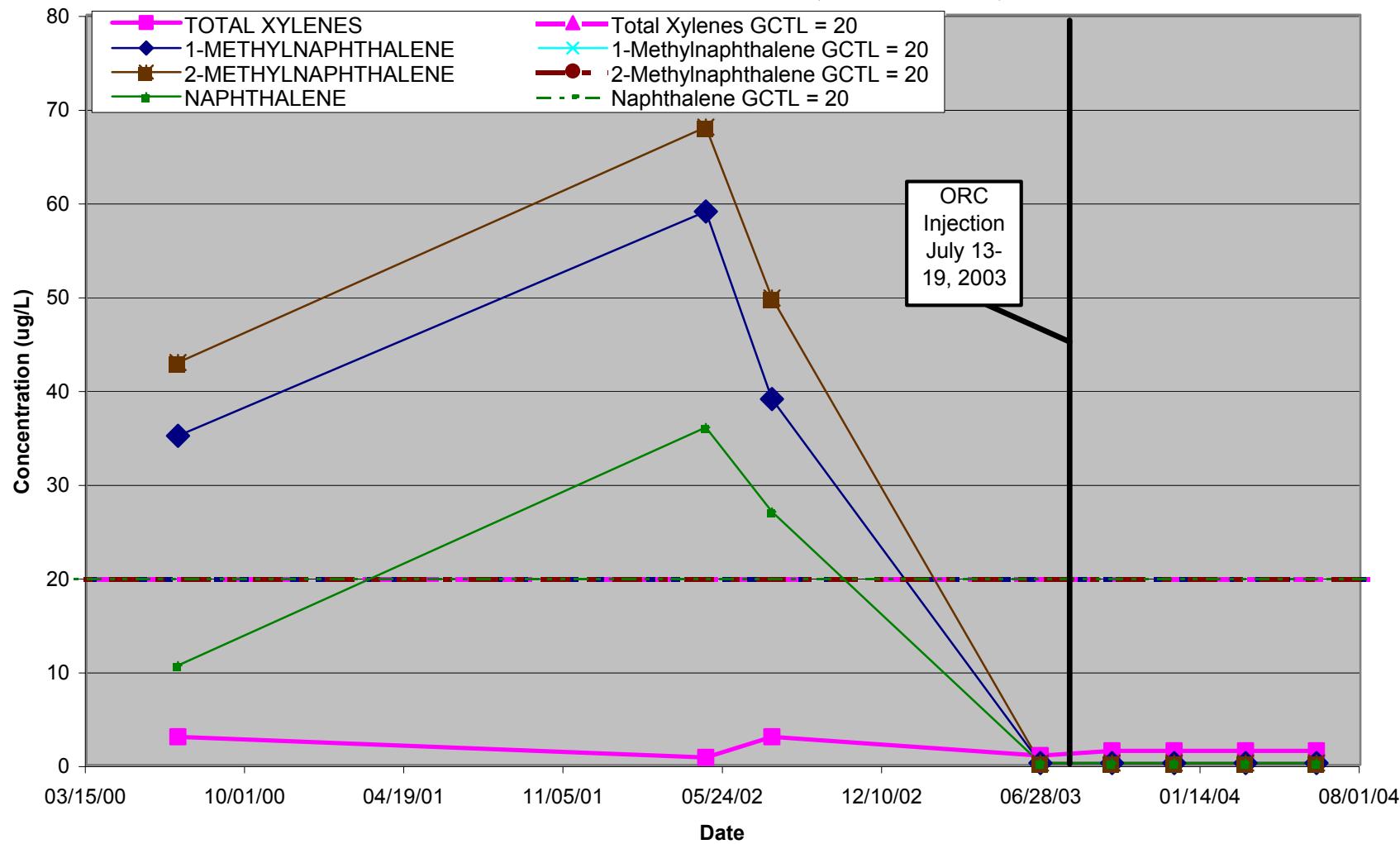


FIGURE 3-10
HISTORICAL GROUNDWATER EXCEEDANCES IN MW-26
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA



- On the contrary, results from the baseline sample round were significantly greater than historical detections in well MW-4 (Figure 3-4). Concentrations in this well exceeded the NADSCs for 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene. This is the only well with historical or baseline concentrations exceeding NADSC criteria.
- Numerous wells had contaminant concentrations which were consistent with historical data (where available) and were less than FDEP GCTLs (e.g., MW-1, MW-2, MW-7, MW-13R, MW-16R, MW-17, MW-18, MW-24, MW-27, and MW-28).

3.3.2.2 Performance Monitoring Data

The extent of contamination for the COCs exceeding regulatory criteria (total xylenes, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene) has been diminished at the site compared to results collected prior to the treatability study. A comparison the contaminant concentrations prior to the treatability study versus the contaminant concentrations during the last monitoring event (June 2004) in the wells nearest the original source (e.g., MW-4) indicates a significant reduction in the COC concentrations. Mapping the aerial extent of where the COC concentrations exceed GCTLs during the June 2004 sampling event appears to indicate that the plume's shape has decreased slightly in size. Previously groundwater contamination was detected as far downgradient as MW-25 and MW-26. Although MW-25 was not sampled during this event, the COC concentrations in MW-26 were non-detect. Additionally, the concentration in the source has been reduced by an order of magnitude. Concentrations in MW-4 and MW-25 are very near the GCTLs for 1-methylnaphthalene, 2-nethylnaphthalene while the other COCs were detected at levels less than the GCTLs. The other "hotspot" wells exceeding GCTLs are concentrations in MW-5R and MW-14R. Concentrations in MW-5R marginally exceed criteria for the COCs while concentrations in MW-14R significantly exceeded regulatory criteria for 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene (Table 3-2).

The SAR Addendum (TtNUS, 2001) included groundwater flow information. The field efforts documented in that report included slug testing of MW-5, MW-30 and DMW-35. A groundwater seepage velocity was then calculated to be 608 feet per year (ft/yr). A more conservative value for seepage velocity included a retardation factor and was presented as 336 ft/yr. Considering this velocity and the distance that MW-5R and MW-14R are from MW-4, it is feasible that the injection effort and natural groundwater flow in the area may be responsible for a slug of contamination migrating to these wells.

Although the potentiometric surface (Figure 3-1 and Appendix C) indicates that groundwater flows radially outward from the vicinity of the source area, contaminant concentrations only exceeded criteria southwest of the source area. This is consistent with the primary groundwater flow direction. Low concentrations that were consistently less than GCTLs were detected west (MW-18), northwest (MW-17), northeast (MW-2) and southeast (MW-1) of the "hotspots" from the baseline sampling event. COC concentrations

in wells immediately to the west (MW-8) and upgradient (MW-13R) of the source were not detected when sampled (Appendix B).

Several interesting observations can be made when reviewing the data collected as part of the treatability study. First, the decreasing trend of concentrations observed in the historical data did not continue in many wells after the commencement of the treatability study. The concentrations increased sharply during the second quarterly event as illustrated on Figures 3-4 through 3-10. For example, at wells MW-5R, MW-14R, MW-16R, and MW-24, the concentrations increased by more than 50 percent in the second quarter. This rapid increase in concentrations is often observed in many biostimulation remedial projects. It is often attributed to a rapid mobilization of sorbed contaminant mass into the dissolved phase. It has been observed by Regenesis (personal communication) that this rapid mobilization is due to an enzyme excreted by the microbial consortia as a result of the rapid and sudden release of oxygen from the ORC®. This enzyme acts as a biosurfactant and accelerates the desorption of contaminant mass from the sorbed phase to the dissolved-phase resulting in a rapid rise in dissolved phase concentrations. However, this phenomenon appears to be short lived and once the microbiota equilibrate with the new conditions, they consume the dissolved contaminants.

This increase may be attributed to the fluctuation in the water table surface also. There appears to be an inverse relationship between the water table elevation and the dissolved concentrations. As the water table rose, as shown in Figure 3-2, the concentrations tended to decrease and visa versa (Figures 3-4 through 3-10). Specifically, in December 2003 and June 2004 when the water table was at lower levels, contaminant increases were detected. During other events when the water table was high (September 2003 and March 2004), lower concentrations were detected. This fluctuation is clearly seen in MW-4 (Figure 3-4), MW-5R (Figure 3-5), MW-16R (Figure 3-7), and MW-24 (Figure 3-8). As expected, this is only occurring in the vicinity of former source zone. These fluctuations may be due to the presence of residual sorbed contaminant mass on the soil near the fluctuating water table. As the water table rises, contaminant mass slowly desorbs into solution, and when the water levels subsequently fall, the concentrations are then elevated.

Despite this apparently repetitive cycle, the most important observation is that the concentrations (with the exception of MW-5R and MW-14R) continue to decrease to and/or remain less than regulatory criteria over time. For example, at MW-4, the concentration trend over time is clearly decreasing (Figure 3-4), and at MW-16R (Figure 3-7) and MW-24 (Figure 3-8), although the concentrations were greater than historical levels over the course of the treatability study, concentrations during the recent two quarterly sampling events were less than the GCTLs. As discussed in the following section, these fluctuations may be a favorable phenomenon that provides a source of much needed oxygen to support biodegradation and as a result, contaminant destruction.

3.4 NATURAL ATTENUATION PARAMETERS

The concentrations of each monitored natural attenuation or geochemical parameter with respect to background concentrations and changes in the concentrations over time may indicate whether degradation via naturally present microbes is occurring. These geochemical data provides a secondary line of evidence to determine if enhanced natural attenuation is occurring.

Numerous wells were sampled to determine upgradient and/or background concentrations. Background wells having no detectable contaminant concentrations (MW-13R) are preferably used over upgradient or wells that are relatively “clean” wells with low but detectable contaminant concentrations (e.g., MW-7 and MW-17). The trends in monitored natural attenuation parameter concentrations over the course of the treatability study and a discussion of how the monitored natural attenuation parameter measurements compare to baseline and background values are discussed below. The laboratory and field analytical results for monitored natural attenuation parameters for groundwater samples collected during the treatability study are summarized in Tables 3-2 and 3-3, respectively.

DO acts as a primary substrate or co-substrate during aerobic metabolism and is the single most efficient electron acceptor responsible for the biodegradation of natural or anthropogenic organic carbon. Therefore, a decrease in DO in source area wells compared to wells located upgradient of the source could indicate that microbes in the source area are using oxygen for biodegradation under natural conditions. With the release of oxygen from ORC®, it is expected that the DO will increase, at least initially, until the released oxygen is subsequently consumed. The DO levels in the upgradient well (MW-13R) ranged from 4 to 6 milligrams per liter (mg/L) during the treatability study. These elevated DO concentrations are expected in this upgradient well as there are low amounts of organic carbon (i.e., electron donor) relative to what is in the plume to foster oxygen consumption (i.e., microbial activity). As expected, during the same period, DO was lower, ranging from 0.2 to 6 mg/L in the source wells MW-4, MW-5R, MW-14R, MW-16R, and MW-25 where the organic carbon is plentiful due to the presence of petroleum hydrocarbons. Despite a cyclic fluctuation of the DO consistent with the water level fluctuation (Figure 3-2 and Section 3.3.2.2), the DO levels in the source area wells increased following the installation of the ORC® injection. This is particularly evident in wells MW-4, MW-16R, and MW-18 where DO rose from anaerobic conditions (less than 0.5 mg/L) at baseline to aerobic conditions (greater than 0.5 mg/L) for the remainder of the sampling period. It is likely, however, that the precipitation recharge (which caused the water table fluctuation) may have also contributed to this increase. This recharge is favorable because not only will it provide a much-needed source of oxygen, it will also provide nutrients (nitrogen and phosphorous) required for microbial growth.

TABLE 3-3
SUMMARY OF MONITORED NATURAL ATTENUATION PARAMETERS IN GROUNDWATER
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

PAGE 1 OF 5

Sample Location			MW-1					MW-2				
			Baseline 06/24/03	1Q 09/25/03	2Q 12/10/03	3Q NS	4Q NS	Baseline 06/24/03	1Q 09/25/03	2Q 12/10/03	3Q 03/11/04	4Q 06/08/04
Field Parameters												
Dissolved Oxygen	> 0.5 mg/L	mg/L	1.06	4	5.0	NS	NS	3.0	12	1.0	4.0	2.0
Carbon Dioxide	> 2X	mg/L	40	40	11	NS	NS	33	25	14.5	<100	50
Alkalinity	> 2X	mg/L	70	80	40	NS	NS	16	45	50	35	< 10
Ferrous Iron	decreasing trend	mg/L	1.4	--	0.06	NS	NS	1.2	--	0.8	0.08	2.05
Hydrogen Sulfide	decreasing trend	mg/L	1	--	--	NS	NS	0.3	--	--	--	0.1
Temperature	> 20 °C	°C	23.96	25.97	22.5	NS	NS	22.83	24.68	22.39	20.31	21.44
pH	5 < pH < 9	SU	6.62	6.43	7.06	NS	NS	5.20	6.05	7.26	7.63	6.37
ORP	increasing trend	mV	121.0	121	45	NS	NS	22.3	10	-165	-18.9	-36.3
Laboratory Parameters												
Sulfate		mg/L	1 U	1 U	4.2	NS	NS	3	1 U	0.53 J	0.85 J	1.0 U
Total Organic Carbon		mg/L	2 U	2 U	3.2	NS	NS	7.2	3 U	8	2.5	4.3

Sample Location			MW-4					MW-5R				
			Baseline 06/24/03	1Q 09/25/03	2Q 12/10/03	3Q 03/11/04	4Q 06/08/04	Baseline 06/24/03	1Q 09/25/03	2Q 12/10/03	3Q 03/11/04	4Q 06/08/04
Field Parameters												
Dissolved Oxygen	> 0.5 mg/L	mg/L	0.2	2	0.8	6	0.8	4	2	0.9	4.5	2.5
Carbon Dioxide	> 2X	mg/L	70	70	14	11	42	25	65	20	10	180
Alkalinity	> 2X	mg/L	25	40	25	<10	25	<10	75	20	14	350
Ferrous Iron	decreasing trend	mg/L	6.8	0.6	2.8	1.25	2.68	1.4	0.2	2.6	1.39	2.53
Hydrogen Sulfide	decreasing trend	mg/L	0.2	0.7	0.08	--	0.1	1	--	--	--	--
Temperature	> 20 °C	°C	23.25	24.97	23.06	19.84	23.00	23.48	25.84	22.73	20.05	21.80
pH	5 < pH < 9	SU	5.41	5.51	6.55	6.63	6.31	5.33	5.76	6.61	6.89	5.99
ORP	increasing trend	mV	2.6	27	-179	-5	-37.4	129	53	-89	1.7	23.2
Laboratory Parameters												
Sulfate		mg/L	3.4	7	3.5	4.6	1.0 U	8.2	1 U	6.2	6.9	1.8
Total Organic Carbon		mg/L	13	6.2	4.6	2	5.3	3 U	9.9	6.2	3.2	3.4

See notes at end of table.

TABLE 3-3
SUMMARY OF MONITORED NATURAL ATTENUATION PARAMETERS IN GROUNDWATER
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

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Sample Location			MW-7					MW-8				
			Baseline 06/25/03	1Q 09/26/03	2Q 12/11/03	3Q 03/11/04	4Q 06/08/04	Baseline NS	1Q 09/25/03	2Q NS	3Q 03/11/04	4Q NS
Field Parameters												
Dissolved Oxygen	> 0.5 mg/L	mg/L	4-5	5	5	3	1	NS	3.0	NS	3	NS
Carbon Dioxide	> 2X	mg/L	16	25	14	<10	16	NS	35	NS	18	NS
Alkalinity	> 2X	mg/L	<10	5	< 10	<10	<10	NS	<5	NS	<11	NS
Ferrous Iron	decreasing trend	mg/L	--	--	1.4	--	0.62	NS	0.6	NS	2.51	NS
Hydrogen Sulfide	decreasing trend	mg/L	--	--	--	--	--	NS	--	NS	0.5	NS
Temperature	> 20 °C	°C	22.48	24.25	22.61	20.05	21.60	NS	24.04	NS	19.74	NS
pH	5 < pH < 9	SU	5.29	4.34	5.51	5.45	4.45	NS	3.84	NS	4.99	NS
ORP	increasing trend	mV	169.5	339	139	11.7	257.4	NS	108	NS	-17.4	NS
Laboratory Parameters												
Sulfate		mg/L	3.8	3.3	4	2.8	1.0 U	NS	10	NS	4.5	NS
Total Organic Carbon		mg/L	0.6928 U	1 U	1.1	0.34 J	1.0	NS	2 U	NS	3.4	NS

Sample Location			MW-13R					MW-14R				
			Baseline 06/25/03	1Q 09/25/03	2Q 12/10/03	3Q 03/11/04	4Q NS	Baseline 06/25/03	1Q 09/25/03	2Q 12/10/03	3Q 03/10/04	4Q 06/07/04
Field Parameters												
Dissolved Oxygen	> 0.5 mg/L	mg/L	4.0	6.0	4.0	5.0	NS	--	2.0	0.7	1.0	1.0
Carbon Dioxide	> 2X	mg/L	18	30	12.5	<100	NS	70	65	18	20	40
Alkalinity	> 2X	mg/L	<10	35	< 10	<10	NS	35	60	35	27.5	35
Ferrous Iron	decreasing trend	mg/L	--	--	0.1	0.1	NS	6.0	5.0	1.4	4.0	4.0
Hydrogen Sulfide	decreasing trend	mg/L	--	--	--	--	NS	0.5	--	0.05	--	0.1
Temperature	> 20 °C	°C	23.18	23.43	22.17	20.82	NS	22.78	23.75	23.01	20.8	21.89
pH	5 < pH < 9	SU	4.39	5.92	5.87	6.77	NS	6.28	5.42	6.88	7.49	6.42
ORP	increasing trend	mV	88.2	165	73	11.9	NS	-67.6	4	-121	-24.4	-1.9
Laboratory Parameters												
Sulfate		mg/L	7.2	7.5	8.7	4.5	NS	2 U	1 U	1 U	1 U	1.0 U
Total Organic Carbon		mg/L	0.7636 U	1 U	0.66 J	0.51 J	NS	5.2	6.6	4.9	5.2	4.3

See notes at end of table.

TABLE 3-3
**SUMMARY OF MONITORED NATURAL ATTENUATION PARAMETERS IN GROUNDWATER
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA**

PAGE 3 OF 5

Sample Location			MW-16R					MW-17				
			Baseline 06/25/03	1Q 09/24/03	2Q 12/10/03	3Q 03/10/04	4Q 06/07/04	Baseline 06/26/03	1Q 09/26/03	2Q 12/11/03	3Q 03/11/04	4Q NS
<u>Field Parameters</u>	Preferred Range	Units										
Dissolved Oxygen	> 0.5 mg/L	mg/L	0.43	6.0	2.5	5.5	0.8	1.0	4.0	0.5	4.0	NS
Carbon Dioxide	> 2X	mg/L	35	25	17	<10	27	28	30	12	10	NS
Alkalinity	> 2X	mg/L	40	40	18	<10	16	40	60	< 10	<10	NS
Ferrous Iron	decreasing trend	mg/L	2.4	0.8	2.0	0.03	2.85	3.2	--	2.8	0.01	NS
Hydrogen Sulfide	decreasing trend	mg/L	--	--	--	--	--	--	--	0.18	--	NS
Temperature	> 20 °C	°C	23.44	23.33	23.01	20.43	21.96	22.89	23.22	21.51	19.99	NS
pH	5 < pH < 9	SU	5.38	4.17	6.46	5.63	6.05	4.29	3.79	5.77	5.41	NS
ORP	increasing trend	mV	61.1	280	-43	19.9	-30.4	7.6	342	-163	11.4	NS
<u>Laboratory Parameters</u>												
Sulfate		mg/L	7.4	3.9	1	2.7	0.50 J	5.8	5.4	6.5	4.3	NS
Total Organic Carbon		mg/L	0.8686 U	1 U	1.3	0.33 J	0.87 J	1 U	1 U	2.1	0.44 J	NS

Sample Location			MW-18					MW-24				
			Baseline 06/26/03	1Q 09/26/03	2Q 12/11/03	3Q 03/10/04	4Q 06/08/04	Baseline 06/25/03	1Q 09/24/03	2Q 12/10/03	3Q 03/10/04	4Q 06/07/04
<u>Field Parameters</u>	Preferred Range	Units										
Dissolved Oxygen	> 0.5 mg/L	mg/L	0.05	4.00	0.05	5.0	1.0	1.0	5.5	1.5	3.5	1.0
Carbon Dioxide	> 2X	mg/L	45	30	25	<10	19	90	20	30	<10	25
Alkalinity	> 2X	mg/L	10	5	< 10	<10	30	18	15	22.5	<10	25
Ferrous Iron	decreasing trend	mg/L	5.7	--	3.8	0.06	2.44	5	--	2.2	0.26	4.4
Hydrogen Sulfide	decreasing trend	mg/L	5.0	--	0.39	--	--	--	--	--	--	--
Temperature	> 20 °C	°C	22.35	23.52	22.06	20.34	21.01	22.27	23.63	22.78	20.57	21.17
pH	5 < pH < 9	SU	5.15	4.79	5.86	4.63	5.01	5.16	3.67	6.58	4.6	5.60
ORP	increasing trend	mV	-59.9	281	-192	18	150.2	72.0	336	-71	13.5	121.2
<u>Laboratory Parameters</u>												
Sulfate		mg/L	25	9.8	14	7.4	14	3.5	9	3.1	5.6	1.0 U
Total Organic Carbon		mg/L	6.6	1 U	3.7	0.79 J	2.0	2 U	1	3.1	1.2	2.3

See notes at end of table.

TABLE 3-3
SUMMARY OF MONITORED NATURAL ATTENUATION PARAMETERS IN GROUNDWATER
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

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Sample Location Sampling Event Collect Date			MW-25					MW-26				
			Baseline 06/26/03	1Q 09/25/03	2Q 12/11/03	3Q 03/10/04	4Q NS	Baseline 06/26/03	1Q 09/24/03	2Q 12/11/03	3Q 03/10/04	4Q 06/07/04
Field Parameters												
Dissolved Oxygen	> 0.5 mg/L	mg/L	--	5.0	1.0	4.0	NS	4	2.0	1.0	1.5	1.0
Carbon Dioxide	> 2X	mg/L	60	40	16	10.5	NS	30	35	12	11	28
Alkalinity	> 2X	mg/L	18	40	12	<10	NS	<10	15	< 10	<10	<10
Ferrous Iron	decreasing trend	mg/L	2.8	1.4	2.4	0.4	NS	1.6	NR	2.0	0.2	1.9
Hydrogen Sulfide	decreasing trend	mg/L	0.5	--	0.05	--	NS	0.1	--	0.13	0.1	2.0
Temperature	> 20 °C	°C	23.15	24.42	22.99	21.19	NS	22.98	24.84	22.54	20.73	21.75
pH	5 < pH < 9	SU	6.04	5.25	6.52	6.56	NS	3.67	5.77	5.57	6.07	6.60
ORP	increasing trend	mV	-43.5	173	-100	-14.3	NS	48.6	85	23	-16.4	-118.6
Laboratory Parameters												
Sulfate		mg/L	3	5	4.7	4.4	NS	6	3.5	7.2	5.3	4.9
Total Organic Carbon		mg/L	2 U	1 U	4.2	1.1	NS	1 U	1 U	1.4	0.86 J	1.7

Sample Location Sampling Event Collect Date			MW-27					MW-28				
			Baseline 06/26/03	1Q 09/25/03	2Q 12/10/03	3Q 03/10/04	4Q 06/08/04	Baseline 06/26/03	1Q 09/25/03	2Q 12/10/03	3Q 03/10/04	4Q 06/08/04
Field Parameters												
Dissolved Oxygen	> 0.5 mg/L	mg/L	2.0	5.5	2.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0
Carbon Dioxide	> 2X	mg/L	40	35	12	13	18	40	30	13	13	30
Alkalinity	> 2X	mg/L	--	40	12	14	<10	38	40	< 10	<10	<10
Ferrous Iron	decreasing trend	mg/L	0.6	0.40	2.2	2.17	0.25	3.1	0.40	2.8	2.0	0.9
Hydrogen Sulfide	decreasing trend	mg/L	--	--	--	0.1	--	0.1	--	0.11	0.1	0.7
Temperature	> 20 °C	°C	21.94	22.53	22.17	20.56	21.54	22.38	23.42	23.01	21.01	21.38
pH	5 < pH < 9	SU	5.28	4.88	6.05	7.36	5.10	5.18	3.79	5.41	4.49	4.67
ORP	increasing trend	mV	137.3	235	-45	-13	65.4	-2.7	208	-20	-14.6	23.6
Laboratory Parameters												
Sulfate		mg/L	11	5.5	10	13	4.3	3.6	5	7.8	8.4	8.2
Total Organic Carbon		mg/L	0.9552 U	1 U	0.91 J	0.93 J	0.50 J	0.8211 U	1 U	1.2	0.69 J	0.73 J

See notes at end of table.

TABLE 3-3
SUMMARY OF MONITORED NATURAL ATTENUATION PARAMETERS IN GROUNDWATER
UST SITE 1120
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

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Sample Location			MW-29					DMW-35					
			Baseline	1Q NS	2Q 09/25/03	3Q 12/10/03	4Q 03/10/04	Baseline	1Q 06/26/03	2Q 09/25/03	3Q 12/10/03	4Q 03/10/04	4Q 06/07/04
<u>Field Parameters</u>	Preferred Range	Units											
Dissolved Oxygen	> 0.5 mg/L	mg/L	NS	5.0	3.0	5.0	3.0	5.5	5.0	5.0	5.0	1.0	
Carbon Dioxide	> 2X	mg/L	NS	55	14.5	11	27	40	65	16	16	40	
Alkalinity	> 2X	mg/L	NS	40	<10	<10	<10	<10	60	10	<10	<10	
Ferrous Iron	decreasing trend	mg/L	NS	0.20	2.0	1.04	2.11	--	--	--	--	--	
Hydrogen Sulfide	decreasing trend	mg/L	NS	--	--	--	--	--	0.03	--	--	--	
Temperature	> 20 °C	°C	NS	22.93	22.82	21.16	21.84	23.26	23.19	22.66	21.98	23.02	
pH	5 < pH < 9	SU	NS	5.06	5.75	6.80	5.10	4.44	3.77	4.45	4.75	4.56	
ORP	increasing trend	mV	NS	180	50	-6.2	153.4	260.7	372	323	16.5	267.6	
<u>Laboratory Parameters</u>													
Sulfate		mg/L	NS	8.3	6.5	7.5	7.3	31	16	11	10	6.4	
Total Organic Carbon		mg/L	NS	1 U	1.1	1.5	1.4	0.5829 U	1 U	0.37 J	0.45 J	0.37 J	

Sample Location			MW-30					Notes: 2X = two times background concentration mg/L = milligrams per liter				
			Baseline	1Q NS	2Q NS	3Q NS	4Q 06/07/04					
<u>Field Parameters</u>	Preferred Range	Units						NA = not applicable				
Dissolved Oxygen	> 0.5 mg/L	mg/L	NS	NS	NS	NS	1.0	NS = not sampled				
Carbon Dioxide	> 2X	mg/L	NS	NS	NS	NS	25	°C = Degrees Celsius				
Alkalinity	> 2X	mg/L	NS	NS	NS	NS	20	SU = Standard pH Units				
Ferrous Iron	decreasing trend	mg/L	NS	NS	NS	NS	2.04	mV = Millivolts				
Hydrogen Sulfide	decreasing trend	mg/L	NS	NS	NS	NS	--	µg/L = micrograms per liter				
Temperature	> 20 °C	°C	NS	NS	NS	NS	21.71	-- = Analyte not detected above the instrument detection limit				
pH	5 < pH < 9	SU	NS	NS	NS	NS	6.22	J = Estimated concentration				
ORP	increasing trend	mV	NS	NS	NS	NS	31.5	U = non-detect value				
<u>Laboratory Parameters</u>								ORP = Oxidation-reduction potential				
Sulfate		mg/L	NS	NS	NS	NS	NS					
Total Organic Carbon		mg/L	NS	NS	NS	NS	NS					

Ferrous iron (Fe^{2+}) is the soluble end product of the reduction of ferric iron (Fe^{3+}). The absence of or decrease in ferrous iron may indicate that aerobic conditions exist. Conversely, the presence of or increase in ferrous iron would indicate anaerobic or reducing conditions. Microorganisms will use ferric iron as electron acceptors under anaerobic conditions after DO and nitrate have been depleted. Ferrous iron was absent or is at very low concentrations (0.1 mg/L) during most sampling events in upgradient well MW-13R. Ferrous iron concentrations have been highest in source area wells MW-4 and MW-14R (ranging from 1.2 to 6.2 mg/L) but in many cases are slowly decreasing (with the exception of the fourth quarter). Similar iron concentrations were also encountered in wells immediately downgradient of the source wells (MW-24); however, wells further downgradient (e.g., MW-27, MW-28, MW-29) where there is little contamination and oxidizing conditions persist, lower levels of iron were detected (ranging from 0.2 to 3.1 mg/L) approaching similar levels as detected in background.

Sulfate can be used as an electron acceptor after DO, nitrate, and ferric iron are consumed. Under these conditions sulfate is reduced to sulfide or sulfide compounds (such as hydrogen sulfide, H_2S , or HS). Sulfate concentrations in the source area wells typically have been marginally less than sulfate concentrations in the upgradient well MW-13R. This similar distribution of sulfate concentrations suggests that sulfate reduction reactions are limited or are not occurring in the source area. Hydrogen sulfide has not been detected in the upgradient well during the treatability study. In source wells MW-4 and MW-14R, H_2S has been infrequently detected at trace concentrations (0.08 to 0.7 mg/L) during the treatability study. In wells where H_2S were detected at significant levels (1 mg/L at MW-5R) under baseline conditions the values have decreased in subsequent sampling. These low levels and/or decreases of H_2S in the source area suggest the reduced species are being oxidized (i.e., sulfate reducing conditions are not present).

The presence of carbon dioxide and alkalinity in groundwater in excess of background levels may indicate that biodegradation is occurring. Carbon dioxide is the daughter product of aerobic and anaerobic biological reactions. However, because the carbon-buffering system in groundwater (measured as alkalinity) serves as both a sink and a source of carbon dioxide, an increase in this value is a qualitative indication of microbial biodegradation. The carbon dioxide and alkalinity concentrations in the source wells (ranging from 10 to 70 mg/L and non-detect to 65 mg/L, respectively) have consistently been higher than the respective concentrations in upgradient well MW-13R (non-detect to 30 mg/L and non-detect to 35 mg/L) respectively. As tabulated on Table 3-3, a sharp increase in these values was apparent in MW-5R (180 mg/L and 350 mg/L, respectively) during the fourth quarterly sampling round.

The ORP of groundwater is indicative of the redox state that may be present based on the relative tendency of the groundwater to accept or transfer electrons. ORP values in the source wells ranged from -121 to 280 mV. ORP values in the upgradient well were all positive, ranging from 12 to 165 mV. The

ORP values in the source area indicate marginally reducing to moderately oxidizing conditions in this area, which are generally favorable for aerobic biodegradation.

Microbial activity and presence can be affected by the pH of groundwater. Petroleum metabolizing microorganisms generally prefer pH values between 6 and 8 standard units. Reported pH values from the sampled monitoring wells were generally within the preferred pH range. Temperatures ranged from 19.8 degrees Celsius ($^{\circ}\text{C}$) to 25.8 $^{\circ}\text{C}$, which is in the optimal range for biodegradation to occur.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

This report summarizes the results to date of the Enhanced Natural Attenuation Treatability Study for Site 1120. The data collected during this treatability study suggest that the ORC® injection has enhanced biodegradation of the petroleum constituents previously reported in the groundwater. The following conclusions are based on the treatability study data:

- Despite a persistent groundwater mound present in the vicinity of the source area, groundwater contamination exceeding GCTLs is only present along the primary groundwater flow direction (southwest).
- There is a sufficient primary line of evidence supporting enhanced biodegradation of petroleum constituents. The extent of the plume having concentrations exceeding regulatory criteria has been decreased over the course of the treatability study.
- Only three wells (MW-14R, MW-4, and MW-5R) have concentrations that remain in exceedance of GCTLs. However, the concentrations in these wells are currently lower than the historical concentrations detected prior to the treatability study.
- The COCs at the site are total xylenes, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene.
- Despite the excessive sediment present in some monitoring wells, it does not appear that the sediment has detrimentally affected the outcome of this study or the natural attenuation evaluation. On the contrary, because of the much shorter available screen length the measured concentrations may be higher because they are narrowly focused on the water table surface where the PAHs are likely concentrated in groundwater.
- A cyclic water table fluctuation has, in turn, cyclically increased the COC concentrations in groundwater. However, this increase is countered by the fact that this fluctuation (due to recharge) is providing a natural supply of oxygen and other nutrients to naturally biodegrade the COCs. With this natural supply of oxygen, the aquifer likely has a larger natural attenuation capacity than the release of contamination into dissolved phase from the sorbed phase.
- COC concentrations are less than action levels in the source area wells previously specified by the FDEP in the MOP.
- There is a sufficient secondary line of evidence to support the theory that enhanced biodegradation of petroleum constituents is occurring. Changes observed in monitored natural

attenuation parameters (e.g., increases in DO, decreases in ferrous iron, stable concentrations of sulfate and the lack of appreciable reduced sulfides, and the presence of carbon dioxide and alkalinity above background concentrations) suggest that aerobic biodegradation of petroleum constituents is occurring.

- The objective of the treatability study, to evaluate the effectiveness of the ORC® as a remedial technology, was achieved. Because concentrations of COCs have declined during the treatability study, TtNUS concludes that the technology was effective as applied. The effectiveness of the study may also have been supported by the fluctuating water table (recharge events) supplying a natural supply of oxygen and nutrients.
- Although the oxygen from the ORC® is likely consumed at this point, natural processes (e.g., recharge and fluctuating water table) may supply sufficient oxygen and nutrients to continue and potentially complete the natural attenuation of the contaminants present at this site.

4.2 RECOMMENDATIONS

The following recommendations are presented based on the treatability study results:

- Groundwater monitoring should continue until COC concentrations are less than the appropriate GCTLs. In accordance with a verbal communications from FDEP's Remedial Project Manager, TtNUS understands that the previous monitoring program (FDEP, 2002a) may be re-started if the COC concentrations are less than action levels. Because the concentrations of COCs are now less than action levels, TtNUS recommends continued groundwater monitoring under the previous Monitoring Only Program for the site. Additionally, TtNUS recommends that only monitoring wells included in the original monitoring program be sampled.
- The monitoring wells listed in the original monitoring program (MW-2, MW-4, MW-5, MW-13, MW-14, MW-16, MW-24, MW-25, MW-26, MW-28, and MW-29) should be monitored initially until evidence that the treatability study has been effective, and rebound will not occur. Chapter 62-770 FAC requires 4 quarters of post active remediation monitoring, which might appropriate for this site.
- TtNUS suggests a modification to the monitoring only program in that only the detected COCs at the site should be analyzed and reported in future sampling events. Those COCs include: total xylenes, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene.

- Monitoring wells recommended for future monitoring (per the previous bullets) that currently contain excessive sediment should be redeveloped to ensure that the well screen is fully utilized for groundwater sampling. If redevelopment is not successful these wells may need to be replaced.
- Those wells not designated for future monitoring (per the previous bullets) should be abandoned in accordance with federal, FDEP, and local regulations.

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APPENDIX A

FIELD DATA FORMS



Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : TREATABILITY STUDY AT SITE 1140 NW

INSTRUMENT NAME/MODEL:

WATER QUALITY METER / 556 MDS

SITE NAME: SITE 1140 NW. OLF BRONSON

MANUFACTURER: YSI

PROJECT No.: N4250

SERIAL NUMBER: 03B0396AE



Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : TREATABILITY STUDY AT SITE 1140 NW

INSTRUMENT NAME/MODEL:

WATER QUALITY METER / 650 MDS

SITE NAME: SITE 1140 NW. OLF BRONSON

MANUFACTURER: YSI

PROJECT No.: N4250

SERIAL NUMBER: 05314



Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : TREATABILITY STUDY AT SITE 1140 NW

INSTRUMENT NAME/MODEL:

WATER QUALITY METER / 556 MDS

SITE NAME: SITE 1140 NW. OLF BRONSON

MANUFACTURER: YSI

PROJECT No.: N4250

SERIAL NUMBER: 02H0167-AB



Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : TREATABILITY STUDY AT SITE 1140 NW

INSTRUMENT NAME/MODEL: TURBIDOMETER / 2020

SITE NAME: SITE 1140 NW, OLF BRONSON

MANUFACTURER: LaMOTTE

PROJECT No.: N4250

SERIAL NUMBER: 01803



Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : TREATABILITY STUDY AT SITE 1140 NW

INSTRUMENT NAME/MODEL: TURBIDOMETER / 2020

SITE NAME: SITE 1140 NW, OLF BRONSON

MANUFACTURER: LaMOTTE

PROJECT No.: N4250

SERIAL NUMBER: 02953



Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : TREATABILITY STUDY AT SITE 1140 NW

INSTRUMENT NAME/MODEL:

WATER QUALITY METER / 650 MDS

SITE NAME: SITE 1140 NW. OLF BRONSON

MANUFACTURER: YSI

PROJECT No.: N4250

SERIAL NUMBER: 01954

APPENDIX B

GROUNDWATER ANALYTICAL SUMMARY REPORT

LOCATION	OLFB20D002	OLFB20MW01	OLFB20MW01	OLFB20MW01	OLFB20MW02	OLFB20MW02	OLFB20MW02	OLFB20MW02	OLFB20MW02	OLFB20MW02
SAMPLE ID	OLFB20D002	BRN-1120-MW01-01	BRN-1120-MW01-02	BRN-1120-MW01-03	1120MW02-20020724	20MW02-20020502	BRN-1120-MW02-02	BRN-1120-MW02-03	BRN-1120-MW02-04	BRN-1120-MW2-01
SAMPLE DATE	07/08/00	06/24/03	09/25/03	12/10/03	07/24/02	05/02/02	09/25/03	12/10/03	03/11/04	06/24/03
Volatile Organics (ug/L)										
1,1,1-TRICHLOROETHANE	--	--	--	--	1 U	1 U	--	--	--	--
1,1,2,2-TETRACHLOROETHANE	--	--	--	--	1 U	1 U	--	--	--	--
1,1,2-TRICHLOROETHANE	--	--	--	--	1 U	1 U	--	--	--	--
1,1-DICHLOROETHANE	--	--	--	--	1 U	1 U	--	--	--	--
1,1-DICHLOROETHENE	--	--	--	--	1 U	1 U	--	--	--	--
1,2-DIBROMOETHANE	--	--	--	--	1 U	--	--	--	--	--
1,2-DICHLOROBENZENE	--	--	--	--	1 U	1 U	--	--	--	--
1,2-DICHLOROETHANE	--	--	--	--	1 U	1 U	--	--	--	--
1,2-DICHLOROPROPANE	--	--	--	--	1 U	1 U	--	--	--	--
1,3-DICHLOROBENZENE	--	--	--	--	1 U	1 U	--	--	--	--
1,4-DICHLOROBENZENE	--	--	--	--	1 U	1 U	--	--	--	--
2-CHLOROETHYL VINYL ETHER	--	--	--	--	5 U	1 U	--	--	--	--
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.09 J	1 U	1 U
BROMODICHLOROMETHANE	--	--	--	--	1 U	1 U	--	--	--	--
BROMOFORM	--	--	--	--	1 U	1 U	--	--	--	--
BROMOMETHANE	--	--	--	--	1 U	1 U	--	--	--	--
CARBON DISULFIDE	--	--	--	--	--	1 U	--	--	--	--
CARBON TETRACHLORIDE	--	--	--	--	1 U	1 U	--	--	--	--
CHLOROBENZENE	--	--	--	--	1 U	1 U	--	--	--	--
CHLORODIBROMOMETHANE	--	--	--	--	1 U	1 U	--	--	--	--
CHLOROETHANE	--	--	--	--	1 U	1 U	--	--	--	--
CHLOROFORM	--	--	--	--	1 U	1 U	--	--	--	--
CHLOROMETHANE	--	--	--	--	1 U	1 U	--	--	--	--
CIS-1,2-DICHLOROETHENE	--	--	--	--	1 U	1 U	--	--	--	--
CIS-1,3-DICHLOROPROPENE	--	--	--	--	1 U	1 U	--	--	--	--
DICHLORODIFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	4.3	1 U	1 U	1 U	0.89 J	1 U	1 U	1 U	1 U	0.5 J
M+P-XYLENES	--	1 U	2 U	2 U	--	--	2 U	2 U	2 U	1 U
METHYL TERT-BUTYL ETHER	1 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	1 U
METHYLENE CHLORIDE	--	--	--	--	5 U	1 U	--	--	--	--
O-XYLENE	--	1 U	1 U	1 U	--	--	1 U	1 U	1 U	0.5 J
TETRACHLOROETHENE	--	--	--	--	1 U	1 U	--	--	--	--
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.3 J	1 U	1 U
TOTAL XYLEMES	17.2	1 U	3 U	3 U	2.5 J	1 U	3 U	3 U	3 U	2
TRANS-1,2-DICHLOROETHENE	--	--	--	--	1 U	1 U	--	--	--	--
TRANS-1,3-DICHLOROPROPENE	--	--	--	--	1 U	1 U	--	--	--	--
TRICHLOROETHENE	--	--	--	--	1 U	1 U	--	--	--	--
TRICHLOROFUOROMETHANE	--	--	--	--	--	--	--	--	--	--
VINYL CHLORIDE	--	--	--	--	1 U	1 U	--	--	--	--
Semivolatile Organics (ug/L)										
1-METHYLNAPHTHALENE	86.1	0.2 U	0.2 U	0.2 U	49.2	0.50 U	0.2 U	1.4	0.18 J	5.9
2-METHYLNAPHTHALENE	115	0.2 U	0.2 U	0.2 U	76.7	0.50 U	0.2 U	1.2	0.22	4.9
ACENAPHTHENE	8.4 U	0.2 U	0.2 U	0.2 U	1 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
ACENAPHTHYLENE	8.4 U	0.2 U	0.2 U	0.2 U	1 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
ANTHRACENE	8.4 U	0.2 U	0.2 U	0.2 U	1 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
BENZO(A)ANTHRACENE	0.84 U	0.2 U	0.2 U	0.2 U	0.21 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
BENZO(A)PYRENE	0.84 U	0.2 U	0.2 U	0.2 U	0.21 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
BENZO(B)FLUORANTHENE	0.84 U	0.2 U	0.2 U	0.2 U	0.21 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
BENZO(G,H,I)PERYLENE	0.84 U	0.2 U	0.2 U	0.2 U	0.21 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U

LOCATION	OLFB20D002	OLFB20MW01	OLFB20MW01	OLFB20MW01	OLFB20MW02	OLFB20MW02	OLFB20MW02	OLFB20MW02	OLFB20MW02	OLFB20MW02
SAMPLE ID	OLFB20D002	BRN-1120-MW01-01	BRN-1120-MW01-02	BRN-1120-MW01-03	1120MW02-20020724	20MW02-20020502	BRN-1120-MW02-02	BRN-1120-MW02-03	BRN-1120-MW02-04	BRN-1120-MW2-01
SAMPLE DATE	07/08/00	06/24/03	09/25/03	12/10/03	07/24/02	05/02/02	09/25/03	12/10/03	03/11/04	06/24/03
BENZO(K)FLUORANTHENE	0.84 U	0.2 U	0.2 U	0.2 U	0.21 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
CHRYSENE	8.4 U	0.2 U	0.2 U	0.2 U	0.21 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
DIBENZO(A,H)ANTHRACENE	0.84 U	0.2 U	0.2 U	0.2 U	0.21 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
FLUORANTHENE	8.4 U	0.2 U	0.2 U	0.2 U	1 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
FLUORENE	8.4 U	0.2 U	0.2 U	0.2 U	1.2	0.50 U	0.2 U	0.2 U	0.2 U	1 U
INDENO(1,2,3-CD)PYRENE	0.84 U	0.2 U	0.2 U	0.2 U	0.21 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
NAPHTHALENE	40.5	0.2 U	0.2 U	0.2 U	35.6	0.50 U	0.2 U	1.3	0.54	3
PHENANTHRENE	8.4 U	0.2 U	0.2 U	0.2 U	0.47 J	0.50 U	0.2 U	0.2 U	0.2 U	1 U
PYRENE	8.4 U	0.2 U	0.2 U	0.2 U	1 U	0.50 U	0.2 U	0.2 U	0.2 U	1 U
Petroleum Hydrocarbons (ug/L)										
TOTAL PETROLEUM HYDROCARBONS	2320	500 U	290 J	530 U	3670	180 U	500 U	1700 U	500 U	1600
Miscellaneous Parameters (mg/L)										
SULFATE	--	1 U	1 U	4.2	--	--	1 U	0.53 J	0.85 J	3
TOTAL ORGANIC CARBON	--	2 U	2 U	3.2	--	--	3 U	8	2.5	7.2

LOCATION SAMPLE ID SAMPLE DATE	OLFB20MW25 BRN-1120-MW25-02 09/25/03	OLFB20MW02 OLFB1120MW205 06/08/04	OLFB20MW02 OLFB20MW03 07/08/00	OLFB20MW03 OLFB20MW03 07/07/00	OLFB20MW04 1120MW04-20020724 07/24/02	OLFB20MW04 20MW04-20020502 05/02/02	OLFB20MW04 BRN-1120-MW04-02 09/25/03	OLFB20MW04 BRN-1120-MW04-03 12/10/03	OLFB20MW04 BRN-1120-MW04-04 03/11/04	OLFB20MW04 BRN-1120-MW4-01 06/24/03	OLFB20MW04 BRN1120MW4GW 09/18/02	
Volatile Organics (ug/L)												
1,1,1-TRICHLOROETHANE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
1,1,2,2-TETRACHLOROETHANE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
1,1-DICHLOROETHANE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
1,1-DICHLOROETHENE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
1,2-DIBROMOETHANE	--	--	--	1 U	1 U	--	--	--	--	--	--	--
1,2-DICHLOROBENZENE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
1,2-DICHLOROETHANE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
1,2-DICHLOROPROPANE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
1,3-DICHLOROBENZENE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
1,4-DICHLOROBENZENE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
2-CHLOROETHYL VINYL ETHER	--	--	--	1 UJ	5 U	1 U	--	--	--	--	--	--
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
BROMODICHLOROMETHANE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
BROMOFORM	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
BROMOMETHANE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
CARBON DISULFIDE	--	--	--	--	--	1 U	--	--	--	--	--	--
CARBON TETRACHLORIDE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
CHLOROBENZENE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
CHLORODIBROMOMETHANE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
CHLOROETHANE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
CHLOROFORM	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
CHLOROMETHANE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
CIS-1,2-DICHLOROETHENE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
CIS-1,3-DICHLOROPROPENE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
DICHLORODIFLUOROMETHANE	--	--	--	1 U	--	--	--	--	--	--	--	--
ETHYLBENZENE	1 U	1 U	1 U	1 U	13.2	20	1 U	6	1 U	14	--	--
M+p-XYLENES	2 U	2 U	--	--	--	--	2 U	12	2 U	28	--	--
METHYL TERT-BUTYL ETHER	2 U	2 U	1 U	1 U	1 U	1 U	2 U	2 U	2 U	1 U	--	--
METHYLENE CHLORIDE	--	--	--	5 U	5 U	1 U	--	--	--	--	--	--
O-XYLENE	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	--	--
TETRACHLOROETHENE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
TOTAL XYLEMES	3 U	3 U	3 U	3 U	19.9	45	3 U	12	3 U	28	--	--
TRANS-1,2-DICHLOROETHENE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
TRANS-1,3-DICHLOROPROPENE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
TRICHLOROETHENE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE	--	--	--	1 U	--	--	--	--	--	--	--	--
VINYL CHLORIDE	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--
Semivolatile Organics (ug/L)												
1-METHYLNAPHTHALENE	0.2 U	5.2	6	2 U	189	100	0.2 U	36	0.2 U	380	0.43 J	
2-METHYLNAPHTHALENE	0.11 J	4.9	7	2 U	272	130	0.2 U	52	0.2 U	220	0.54 J	
ACENAPHTHENE	0.2 U	0.2 U	2.2 U	2 U	2.7	1.6	0.2 U	7.7 U	0.2 U	110 U	1.1 U	
ACENAPHTHYLENE	0.2 U	0.2 U	2.2 U	2 U	1.1 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	1.1 U	
ANTHRACENE	0.2 U	0.2 U	2.2 U	2 U	1.1 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	1.1 U	
BENZO(A)ANTHRACENE	0.2 U	0.2 U	0.22 U	0.20 U	0.21 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	0.22 U	
BENZO(A)PYRENE	0.2 U	0.2 U	0.22 U	0.20 U	0.21 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	0.22 U	
BENZO(B)FLUORANTHENE	0.2 U	0.2 U	0.22 U	0.20 U	0.21 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	0.22 U	
BENZO(G,H,I)PERYLENE	0.2 U	0.2 U	0.22 U	0.20 U	0.21 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	0.22 U	

LOCATION SAMPLE ID SAMPLE DATE	OLFB20MW25 BRN-1120-MW25-02 09/25/03	OLFB20MW02 OLFB1120MW205 06/08/04	OLFB20MW02 OLFB20MW02 07/08/00	OLFB20MW03 OLFB20MW03 07/07/00	OLFB20MW04 1120MW04-20020724 07/24/02	OLFB20MW04 20MW04-20020502 05/02/02	OLFB20MW04 BRN-1120-MW04-02 09/25/03	OLFB20MW04 BRN-1120-MW04-03 12/10/03	OLFB20MW04 BRN-1120-MW04-04 03/11/04	OLFB20MW04 BRN-1120-MW04-04 06/24/03	OLFB20MW04 BRN1120MW4GW 09/18/02	
BENZO(K)FLUORANTHENE	0.2 U	0.2 U	0.22 U	0.20 U	0.21 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	0.22 U	
CHRYSENE	0.2 U	0.2 U	4.4 U	2 U	0.21 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	0.22 U	
DIBENZO(A,H)ANTHRACENE	0.2 U	0.2 U	0.22 U	0.20 U	0.21 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	0.22 U	
FLUORANTHENE	0.2 U	0.2 U	2.2 U	2 U	1.1 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	1.1 U	
FLUORENE	0.2 U	0.092 J	2.2 U	2 U	4.5	2.4	0.2 U	7.7 U	0.2 U	110 U	1.1 U	
INDENO(1,2,3-CD)PYRENE	0.2 U	0.2 U	0.22 U	0.20 U	0.21 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	0.22 U	
NAPHTHALENE	0.2 U	2.6	3	2 U	303	160	0.2 U	42	0.2 U	440	1.1	
PHENANTHRENE	0.2 U	0.2 U	2.2 U	2 U	1.4	0.57	0.2 U	7.7 U	0.2 U	110 U	1.1 U	
PYRENE	0.2 U	0.2 U	2.2 U	2 U	1.1 U	0.53 U	0.2 U	7.7 U	0.2 U	110 U	1.1 U	
Petroleum Hydrocarbons (ug/L)												
TOTAL PETROLEUM HYDROCARBONS	500 U	670 J	1140	1570	8190	10000	720	1800 U	290 J	3200	--	
Miscellaneous Parameters (mg/L)												
SULFATE	5	1.0 U	--	--	--	--	7	3.5	4.6	3.4	--	
TOTAL ORGANIC CARBON	1 U	4.3	--	--	--	--	6.2	4.6	2	13	--	

LOCATION SAMPLE ID SAMPLE DATE	OLFB20MW04 OLFB1120MW405 06/08/04	OLFB20MW04 OLFB20MW04 07/07/00	OLFB20MW05 1120MW05R-20020724 07/24/02	OLFB20MW05 OLFB20MW05 07/06/00	OLFB20MW05 OLFB20MW05-D 07/07/00	OLFB20MW05R BRN-1120-MW5R-01 06/24/03	OLFB20MW05R BRN-1120-MW5R-02 09/25/03	OLFB20MW05R BRN-1120-MW5R-03 12/10/03	OLFB20MW05R BRN-1120-MW5R-04 03/11/04	OLFB20MW05R OLFB1120MW5R05 06/08/04	OLFB20MW06 OLFB20MW06 07/07/00
Volatile Organics (ug/L)											
1,1,1-TRICHLOROETHANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
1,1,2,2-TETRACHLOROETHANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
1,1,2-TRICHLOROETHANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
1,1-DICHLOROETHANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
1,1-DICHLOROETHENE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
1,2-DIBROMOETHANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
1,2-DICHLOROBENZENE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
1,2-DICHLOROETHANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
1,2-DICHLOROPROPANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
1,3-DICHLOROBENZENE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
1,4-DICHLOROBENZENE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
2-CHLOROETHYL VINYL ETHER	--	1 U	5 U	1 U	1 U	--	--	--	--	--	1 U
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
BROMOFORM	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
BROMOMETHANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
CARBON DISULFIDE	--	--	--	--	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
CHLOROBENZENE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
CHLORODIBROMOMETHANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
CHLOROETHANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
CHLOROFORM	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
CHLOROMETHANE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
CIS-1,2-DICHLOROETHENE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
CIS-1,3-DICHLOROPROPENE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
DICHLORODIFLUOROMETHANE	--	1 U	--	1 U	1 U	--	--	--	--	--	1 U
ETHYLBENZENE	3	24.6	18.1	27.5	21.2	0.3 J	1 U	10	1 U	12	1 U
M+P-XYLENES	3	--	--	--	--	1 U	2 U	30	2 U	28	--
METHYL TERT-BUTYL ETHER	2 U	1 U	1 U	1 U	1 U	1 U	2 U	2 U	2 U	2 U	1 U
METHYLENE CHLORIDE	--	5 U	5 U	5 U	5 U	--	--	--	--	--	5 U
O-XYLENE	1 U	--	--	--	--	1 U	1 U	1 U	1 U	0.6 J	--
TETRACHLOROETHENE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLEMES	3	69.5	70.2	62.5	47.3	1 U	3 U	30	3 U	28	3 U
TRANS-1,2-DICHLOROETHENE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
TRANS-1,3-DICHLOROPROPENE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
TRICHLOROETHENE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
TRICHLOROFUOROMETHANE	--	1 U	--	1 U	1 U	--	--	--	--	--	1 U
VINYL CHLORIDE	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U
Semivolatile Organics (ug/L)											
1-METHYLNAPHTHALENE	18	133	59.8	126	140	2.2	0.2 U	34	0.2 U	37	2.2 U
2-METHYLNAPHTHALENE	21	186	88.7	166	202	1.3	0.2 U	43	0.2 U	44	2.2 U
ACENAPHTHENE	0.3	17 U	0.66 J	8.4 U	17 U	0.2 U	0.2 U	7.6 U	0.2 U	0.47	2.2 U
ACENAPHTHYLENE	0.2 U	17 U	1 U	8.4 U	17 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	2.2 U
ANTHRACENE	0.2 U	4.2 U	1 U	8.4 U	8.4 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	2.2 U
BENZO(A)ANTHRACENE	0.2 U	0.42 U	0.20 U	0.84 U	0.84 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.22 U
BENZO(A)PYRENE	0.2 U	0.42 U	0.20 U	0.84 U	0.84 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.22 U
BENZO(B)FLUORANTHENE	0.2 U	0.42 U	0.20 U	0.84 U	0.84 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.22 U
BENZO(G,H,I)PERYLENE	0.2 U	0.42 U	0.20 U	0.84 U	0.84 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.22 U

LOCATION SAMPLE ID SAMPLE DATE	OLFB20MW04 OLFB1120MW405 06/08/04	OLFB20MW04 OLFB20MW04 07/07/00	OLFB20MW05 1120MW05R-20020724 07/24/02	OLFB20MW05 OLFB20MW05 07/06/00	OLFB20MW05 OLFB20MW05-D 07/07/00	OLFB20MW05R BRN-1120-MW5R-01 06/24/03	OLFB20MW05R BRN-1120-MW5R-02 09/25/03	OLFB20MW05R BRN-1120-MW5R-03 12/10/03	OLFB20MW05R BRN-1120-MW5R-04 03/11/04	OLFB20MW05R OLFB1120MW5R05 06/08/04	OLFB20MW05R OLFB20MW06 07/07/00	
BENZO(K)FLUORANTHENE	0.2 U	0.42 U	0.20 U	0.84 U	0.84 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	0.22 U
CHRYSENE	0.2 U	4.2 U	0.20 U	8.4 U	8.4 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	2.2 U
DIBENZO(A,H)ANTHRACENE	0.2 U	0.42 U	0.20 U	0.84 U	0.84 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	0.22 U
FLUORANTHENE	0.2 U	4.2 U	1 U	8.4 U	8.4 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	2.2 U
FLUORENE	0.52	17 U	1.4	8.4 U	17 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.85	2.2 U
INDENO(1,2,3-CD)PYRENE	0.2 U	0.42 U	0.20 U	0.84 U	0.84 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	0.22 U
NAPHTHALENE	20	185	86.8	153	176	2.1	0.2 U	48	0.2 U	46	0.2 U	2.2 U
PHENANTHRENE	0.26	17 U	1	8.4 U	17 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.38	2.2 U
PYRENE	0.2 U	4.2 U	1 U	8.4 U	8.4 U	0.2 U	0.2 U	7.6 U	0.2 U	0.2 U	0.2 U	2.2 U
Petroleum Hydrocarbons (ug/L)												
TOTAL PETROLEUM HYDROCARBONS	650	6390	1990	4550 J	7750 J	620	890	1800 U	350 J	1200	328	
Miscellaneous Parameters (mg/L)												
SULFATE	1.0 U	--	--	--	--	8.2	1 U	6.2	6.9	1.8	--	
TOTAL ORGANIC CARBON	5.3	--	--	--	--	3 U	9.9	6.2	3.2	3.4	--	

LOCATION	OLFB20MW07	OLFB20MW07	OLFB20MW07	OLFB20MW07	OLFB20MW07	OLFB20MW07	OLFB20MW08	OLFB20MW08	OLFB20MW106	OLFB20MW11	OLFB20MW12
SAMPLE ID	BRN-1120-MW07-03	BRN-1120-MW07-04	BRN-1120-MW7-01	BRN-1120-MW7-02	OLFB1120MW705	OLFB20MW07	BRN-1120-MW08-01	BRN-1120-MW08-03	OLFB20MW106	OLFB20MW11	OLFB20MW12
SAMPLE DATE	12/11/03	03/11/04	06/25/03	09/26/03	06/08/04	07/07/00	09/25/03	03/11/04	07/06/00	07/08/00	07/08/00
Volatile Organics (ug/L)											
1,1,1-TRICHLOROETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
1,1,2,2-TETRACHLOROETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
1,1,2-TRICHLOROETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
1,1-DICHLOROETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
1,1-DICHLOROETHENE	--	--	--	--	--	1 U	--	--	1 U	--	--
1,2-DIBROMOETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
1,2-DICHLOROBENZENE	--	--	--	--	--	1 U	--	--	1 U	--	--
1,2-DICHLOROETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
1,2-DICHLOROPROPANE	--	--	--	--	--	1 U	--	--	1 U	--	--
1,3-DICHLOROBENZENE	--	--	--	--	--	1 U	--	--	1 U	--	--
1,4-DICHLOROBENZENE	--	--	--	--	--	1 U	--	--	1 U	--	--
2-CHLOROETHYL VINYL ETHER	--	--	--	--	--	1 U	--	--	1 UJ	--	--
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
BROMOFORM	--	--	--	--	--	1 U	--	--	1 U	--	--
BROMOMETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
CARBON DISULFIDE	--	--	--	--	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	--	--	--	--	--	1 U	--	--	1 U	--	--
CHLOROBENZENE	--	--	--	--	--	1 U	--	--	1 U	--	--
CHLORODIBROMOMETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
CHLOROETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
CHLOROFORM	--	--	--	--	--	1 U	--	--	1 U	--	--
CHLOROMETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
CIS-1,2-DICHLOROETHENE	--	--	--	--	--	1 U	--	--	1 U	--	--
CIS-1,3-DICHLOROPROPENE	--	--	--	--	--	1 U	--	--	1 U	--	--
DICHLORODIFLUOROMETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	29.7	1 U	1 U
M+P-XYLENES	2 U	2 U	1 U	2 U	2 U	--	2 U	2 U	--	--	--
METHYL TERT-BUTYL ETHER	2 U	2 U	1 U	2 U	2 U	1 U	2 U	2 U	1 U	1 U	1 U
METHYLENE CHLORIDE	--	--	--	--	--	5 U	--	--	5 U	--	--
O-XYLENE	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	--	--	--
TETRACHLOROETHENE	--	--	--	--	--	1 U	--	--	1 U	--	--
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLENES	3 U	3 U	1 U	3 U	3 U	3 U	3 U	3 U	116	3 U	3 U
TRANS-1,2-DICHLOROETHENE	--	--	--	--	--	1 U	--	--	1 U	--	--
TRANS-1,3-DICHLOROPROPENE	--	--	--	--	--	1 U	--	--	1 U	--	--
TRICHLOROETHENE	--	--	--	--	--	1 U	--	--	1 U	--	--
TRICHLOROFLUOROMETHANE	--	--	--	--	--	1 U	--	--	1 U	--	--
VINYL CHLORIDE	--	--	--	--	--	1 U	--	--	1 U	--	--
Semivolatile Organics (ug/L)											
1-METHYLNAPHTHALENE	0.37	0.094 J	0.2 U	0.2 U	0.84	2 U	0.2 U	0.2 U	160	2.2 U	3.5
2-METHYLNAPHTHALENE	0.25	0.098 J	0.2 U	0.2 U	0.64	2 U	0.2 U	0.2 U	203	2.2 U	5.4
ACENAPHTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.1 J	2 U	0.2 U	0.2 U	17 U	2.2 U	8.6 U
ACENAPHTHYLENE	0.051	0.2 U	0.2 U	0.2 U	0.21 U	2 U	0.2 U	0.2 U	17 U	2.2 U	2.2 U
ANTHRACENE	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	2 U	0.2 U	0.2 U	4.4 U	2.2 U	8.6 U
BENZO(A)ANTHRACENE	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.20 U	0.2 U	0.2 U	0.44 U	0.22 U	0.22 U
BENZO(A)PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.20 U	0.2 U	0.2 U	0.44 U	0.22 U	0.22 U
BENZO(B)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.20 U	0.2 U	0.2 U	0.44 U	0.22 U	0.22 U
BENZO(G,H,I)PERYLENE	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.20 U	0.2 U	0.2 U	0.44 U	0.22 U	0.22 U

LOCATION	OLFB20MW07	OLFB20MW07	OLFB20MW07	OLFB20MW07	OLFB20MW07	OLFB20MW07	OLFB20MW08	OLFB20MW08	OLFB20MW106	OLFB20MW11	OLFB20MW12	
SAMPLE ID	BRN-1120-MW07-03	BRN-1120-MW07-04	BRN-1120-MW07-01	BRN-1120-MW07-02	BRN-1120-MW0705	OLFB20MW07	BRN-1120-MW08-01	BRN-1120-MW08-03	OLFB20MW106	OLFB20MW11	OLFB20MW12	
SAMPLE DATE	12/11/03	03/11/04	06/25/03	09/26/03	06/08/04	07/07/00	09/25/03	03/11/04	07/06/00	07/08/00	07/08/00	
BENZO(K)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.20 U	0.2 U	0.2 U	0.44 U	0.22 U	0.22 U	
CHRYSENE	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	2 U	0.2 U	0.2 U	4.4 U	2.2 U	2.2 U	
DIBENZO(A,H)ANTHRACENE	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.20 U	0.2 U	0.2 U	0.44 U	0.22 U	0.22 U	
FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	2 U	0.2 U	0.2 U	4.4 U	2.2 U	8.6 U	
FLUORENE	0.11	0.2 U	0.2 U	0.2 U	0.2 U	0.3	2 U	0.2 U	0.2 U	17 U	2.2 U	8.6 U
INDENO(1,2,3-CD)PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.20 U	0.2 U	0.2 U	0.44 U	0.22 U	0.22 U	
NAPHTHALENE	0.2 U	0.2 U	0.2 U	0.2 U	0.12 J	2 U	0.2 U	0.2 U	132	2.2 U	2.2 U	
PHENANTHRENE	0.2 U	0.2 U	0.2 U	0.2 U	0.18 J	2 U	0.2 U	0.2 U	17 U	2.2 U	8.6 U	
PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	2 U	0.2 U	0.2 U	4.4 U	2.2 U	2.2 U	
Petroleum Hydrocarbons (ug/L)												
TOTAL PETROLEUM HYDROCARBONS	500 U	500 U	500 U	500 U	310 J	720	500 U	500 U	6050	280 U	1780	
Miscellaneous Parameters (mg/L)												
SULFATE	4	2.8	3.8	3.3	1.0 U	--	10	4.5	--	--	--	
TOTAL ORGANIC CARBON	1.1	0.34 J	0.6928 U	1 U	1.0	--	2 U	3.4	--	--	--	

LOCATION SAMPLE ID SAMPLE DATE	OLFB20MW13R 1120MW13R-20020725 07/25/02	OLFB20MW13R BRN-1120-MW13R-01 06/25/03	OLFB20MW13R BRN-1120-MW13R-02 09/25/03	OLFB20MW13R BRN-1120-MW13R-03 12/10/03	OLFB20MW13R BRN-1120-MW13R-04 03/11/04	OLFB20MW14R 1120MW14R-20020725 07/25/02	OLFB20MW14R BRN-1120-MW14R-01 06/25/03	OLFB20MW14R BRN-1120-MW14R-02 09/25/03	OLFB20MW14R BRN-1120-MW14R-03 12/10/03
Volatile Organics (ug/L)									
1,1,1-TRICHLOROETHANE	1 U	--	--	--	--	1 U	--	--	--
1,1,2,2-TETRACHLOROETHANE	1 U	--	--	--	--	1 U	--	--	--
1,1,2-TRICHLOROETHANE	1 U	--	--	--	--	1 U	--	--	--
1,1-DICHLOROETHANE	1 U	--	--	--	--	1 U	--	--	--
1,1-DICHLOROETHENE	1 U	--	--	--	--	1 U	--	--	--
1,2-DIBROMOETHANE	1 U	--	--	--	--	1 U	--	--	--
1,2-DICHLOROBENZENE	1 U	--	--	--	--	1 U	--	--	--
1,2-DICHLOROETHANE	1 U	--	--	--	--	1 U	--	--	--
1,2-DICHLOROPROPANE	1 U	--	--	--	--	1 U	--	--	--
1,3-DICHLOROBENZENE	1 U	--	--	--	--	1 U	--	--	--
1,4-DICHLOROBENZENE	1 U	--	--	--	--	1 U	--	--	--
2-CHLOROETHYL VINYL ETHER	5 U	--	--	--	--	5 U	--	--	--
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	1 U	--	--	--	--	1 U	--	--	--
BROMOFORM	1 U	--	--	--	--	1 U	--	--	--
BROMOMETHANE	1 U	--	--	--	--	1 U	--	--	--
CARBON DISULFIDE	--	--	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	1 U	--	--	--	--	1 U	--	--	--
CHLOROBENZENE	1 U	--	--	--	--	1 U	--	--	--
CHLORODIBROMOMETHANE	1 U	--	--	--	--	1 U	--	--	--
CHLOROETHANE	1 U	--	--	--	--	1 U	--	--	--
CHLOROFORM	1.1	--	--	--	--	1 U	--	--	--
CHLOROMETHANE	1 U	--	--	--	--	1 U	--	--	--
CIS-1,2-DICHLOROETHENE	1 U	--	--	--	--	1 U	--	--	--
CIS-1,3-DICHLOROPROPENE	1 U	--	--	--	--	1 U	--	--	--
DICHLORODIFLUOROMETHANE	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	37.8	16	3	9
M+P-XYLENES	--	1 U	2 U	2 U	2 U	--	32	5	12
METHYL TERT-BUTYL ETHER	1 U	1 U	2 U	2 U	2 U	1 U	1 U	2 U	2 U
METHYLENE CHLORIDE	5 U	--	--	--	--	5 U	--	--	--
O-XYLENE	--	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U
TETRACHLOROETHENE	1 U	--	--	--	--	1 U	--	--	--
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLEMES	3 U	1 U	3 U	3 U	3 U	120	32	5	12
TRANS-1,2-DICHLOROETHENE	1 U	--	--	--	--	1 U	--	--	--
TRANS-1,3-DICHLOROPROPENE	1 U	--	--	--	--	1 U	--	--	--
TRICHLOROETHENE	1 U	--	--	--	--	1 U	--	--	--
TRICHLOROFLUOROMETHANE	--	--	--	--	--	--	--	--	--
VINYL CHLORIDE	1 U	--	--	--	--	1 U	--	--	--
Semivolatile Organics (ug/L)									
1-METHYLNAPHTHALENE	0.61 J	0.21 U	0.2 U	0.2 U	0.2 U	247	160	76	130
2-METHYLNAPHTHALENE	0.61 J	0.21 U	0.2 U	0.2 U	0.2 U	355	150	97	200
ACENAPHTHENE	1 U	0.21 U	0.2 U	0.2 U	0.2 U	3.2	44 U	7.5 U	19 U
ACENAPHTHYLENE	1 U	0.21 U	0.2 U	0.2 U	0.2 U	1 U	44 U	7.5 U	19 U
ANTHRACENE	1 U	0.21 U	0.2 U	0.2 U	0.2 U	1 U	44 U	7.5 U	19 U
BENZO(A)ANTHRACENE	0.20 U	0.21 U	0.2 U	0.2 U	0.2 U	0.21 U	44 U	7.5 U	19 U
BENZO(A)PYRENE	0.20 U	0.21 U	0.2 U	0.2 U	0.2 U	0.21 U	44 U	7.5 U	19 U
BENZO(B)FLUORANTHENE	0.20 U	0.21 U	0.2 U	0.2 U	0.2 U	0.21 U	44 U	7.5 U	19 U
BENZO(G,H,I)PERYLENE	0.20 U	0.21 U	0.2 U	0.2 U	0.2 U	0.21 U	44 U	7.5 U	19 U

LOCATION SAMPLE ID SAMPLE DATE	OLF20MW13R 1120MW13R-20020725 07/25/02	OLF20MW13R BRN-1120-MW13R-01 06/25/03	OLF20MW13R BRN-1120-MW13R-02 09/25/03	OLF20MW13R BRN-1120-MW13R-03 12/10/03	OLF20MW13R BRN-1120-MW13R-04 03/11/04	OLF20MW14R 1120MW14R-20020725 07/25/02	OLF20MW14R BRN-1120-MW14R-01 06/25/03	OLF20MW14R BRN-1120-MW14R-02 09/25/03	OLF20MW14R BRN-1120-MW14R-03 12/10/03
BENZO(K)FLUORANTHENE	0.20 U	0.21 U	0.2 U	0.2 U	0.2 U	0.21 U	44 U	7.5 U	19 U
CHRYSENE	0.20 U	0.21 U	0.2 U	0.2 U	0.2 U	0.21 U	44 U	7.5 U	19 U
DIBENZO(A,H)ANTHRACENE	0.20 U	0.21 U	0.2 U	0.2 U	0.2 U	0.21 U	44 U	7.5 U	19 U
FLUORANTHENE	1 U	0.21 U	0.2 U	0.2 U	0.2 U	1 U	44 U	7.5 U	19 U
FLUORENE	1 U	0.21 U	0.2 U	0.2 U	0.2 U	6	44 U	2.5 J	19 U
INDENO(1,2,3-CD)PYRENE	0.20 U	0.21 U	0.2 U	0.2 U	0.2 U	0.21 U	44 U	7.5 U	19 U
NAPHTHALENE	1 U	0.21 U	0.2 U	0.2 U	0.2 U	287	52	41	98
PHENANTHRENE	1 U	0.21 U	0.2 U	0.2 U	0.2 U	3.8	44 U	7.5 U	19 U
PYRENE	1 U	0.21 U	0.2 U	0.2 U	0.2 U	1 U	44 U	7.5 U	19 U
Petroleum Hydrocarbons (ug/L)									
TOTAL PETROLEUM HYDROCARBONS	260 U	510 U	500 U	280 J	500 U	7200	3800	4600	4000
Miscellaneous Parameters (mg/L)									
SULFATE	--	7.2	7.5	8.7	4.5	--	2 U	1 U	1 U
TOTAL ORGANIC CARBON	--	0.7636 U	1 U	0.66 J	0.51 J	--	5.2	6.6	4.9

LOCATION	OLFB20MW14R	OLFB20MW14R	OLFB20MW14R	OLFB20MW16R	OLFB20MW16R	OLFB20MW16R	OLFB20MW16R	OLFB20MW16R	OLFB20MW16R	OLFB20MW16R
SAMPLE ID	BRN-1120-MW14R-04	BRN1120MW14RGW	OLFB1120MW14R05	1120MW16R-20020725	BRN-1120-MW16R-01	BRN-1120-MW16R-02	BRN-1120-MW16R-03	BRN-1120-MW16R-04	BRN-1120-MW16R-05	OLFB20MW16R
SAMPLE DATE	03/10/04	09/18/02	06/07/04	07/25/02	06/25/03	09/24/03	12/10/03	03/10/04	06/07/04	OLFB1120MW16R05
Volatile Organics (ug/L)										
1,1,1-TRICHLOROETHANE	--	--	--	1 U	--	--	--	--	--	--
1,1,2,2-TETRACHLOROETHANE	--	--	--	1 U	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	--	--	--	1 U	--	--	--	--	--	--
1,1-DICHLOROETHANE	--	--	--	1 U	--	--	--	--	--	--
1,1-DICHLOROETHENE	--	--	--	1 U	--	--	--	--	--	--
1,2-DIBROMOETHANE	--	--	--	1 U	--	--	--	--	--	--
1,2-DICHLOROBENZENE	--	--	--	1 U	--	--	--	--	--	--
1,2-DICHLOROETHANE	--	--	--	1 U	--	--	--	--	--	--
1,2-DICHLOROPROPANE	--	--	--	1 U	--	--	--	--	--	--
1,3-DICHLOROBENZENE	--	--	--	1 U	--	--	--	--	--	--
1,4-DICHLOROBENZENE	--	--	--	1 U	--	--	--	--	--	--
2-CHLOROETHYL VINYL ETHER	--	--	--	5 U	--	--	--	--	--	--
BENZENE	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	--	--	--	1 U	--	--	--	--	--	--
BROMOFORM	--	--	--	1 U	--	--	--	--	--	--
BROMOMETHANE	--	--	--	1 U	--	--	--	--	--	--
CARBON DISULFIDE	--	--	--	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	--	--	--	1 U	--	--	--	--	--	--
CHLOROBENZENE	--	--	--	1 U	--	--	--	--	--	--
CHLORODIBROMOMETHANE	--	--	--	1 U	--	--	--	--	--	--
CHLOROETHANE	--	--	--	1 U	--	--	--	--	--	--
CHLOROFORM	--	--	--	2.1	--	--	--	--	--	--
CHLORMETHANE	--	--	--	1 U	--	--	--	--	--	--
CIS-1,2-DICHLOROETHENE	--	--	--	1 U	--	--	--	--	--	--
CIS-1,3-DICHLOROPROPENE	--	--	--	1 U	--	--	--	--	--	--
DICHLORODIFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	23	--	11	1 U	1 U	0.7 J	1 U	1 U	1 U	1 U
M+P-XYLENES	51	--	10	--	1 U	3	2 U	2 U	2 U	2 U
METHYL TERT-BUTYL ETHER	2 U	--	2 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U
METHYLENE CHLORIDE	--	--	--	5 U	--	--	--	--	--	--
O-XYLENE	1 U	--	0.6 J	--	1 U	1 U	1 U	1 U	1 U	1 U
TETRACHLOROETHENE	--	--	--	1 U	--	--	--	--	--	--
TOLUENE	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLENES	51	--	10	3 U	1 U	3	3 U	3 U	3 U	3 U
TRANS-1,2-DICHLOROETHENE	--	--	--	1 U	--	--	--	--	--	--
TRANS-1,3-DICHLOROPROPENE	--	--	--	1 U	--	--	--	--	--	--
TRICHLOROETHENE	--	--	--	1 U	--	--	--	--	--	--
TRICHLOROFUOROMETHANE	--	--	--	--	--	--	--	--	--	--
VINYL CHLORIDE	--	--	--	1 U	--	--	--	--	--	--
Semivolatile Organics (ug/L)										
1-METHYLNAPHTHALENE	160	201	140	1.4	2.3	5	13	0.099 J	5.6	
2-METHYLNAPHTHALENE	210	278	200	2.3	5.6	6.2	23	0.2 J	7	
ACENAPHTHENE	2.6	3.5	1.5	1.1 U	0.97 U	0.75 U	0.98 J	0.2 U	0.19 J	
ACENAPHTHYLENE	0.2 U	1.1	0.2 U	1.1 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U	
ANTHRACENE	0.2 U	1 U	0.2 U	1.1 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U	
BENZO(A)ANTHRACENE	0.2 U	0.20 U	0.2 U	0.21 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U	
BENZO(A)PYRENE	0.2 U	0.20 U	0.2 U	0.21 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U	
BENZO(B)FLUORANTHENENE	0.2 U	0.20 U	0.2 U	0.21 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U	
BENZO(G,H,I)PERYLENE	0.2 U	0.20 U	0.2 U	0.21 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U	

LOCATION SAMPLE ID SAMPLE DATE	OLFB20MW14R BRN-1120-MW14R-04 03/10/04	OLFB20MW14R BRN1120MW14RGW 09/18/02	OLFB20MW14R OLFB1120MW14R05 06/07/04	OLFB20MW16R 1120MW16R-20020725 07/25/02	OLFB20MW16R BRN-1120-MW16R-01 06/25/03	OLFB20MW16R BRN-1120-MW16R-02 09/24/03	OLFB20MW16R BRN-1120-MW16R-03 12/10/03	OLFB20MW16R BRN-1120-MW16R-04 03/10/04	OLFB20MW16R OLFB1120MW16R05 06/07/04
BENZO(K)FLUORANTHENE	0.2 U	0.20 U	0.2 U	0.21 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
CHRYSENE	0.2 U	0.20 U	0.2 U	0.21 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
DIBENZO(A,H)ANTHRACENE	0.2 U	0.20 U	0.2 U	0.21 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
FLUORANTHENE	0.2 U	1 U	0.2 U	1.1 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
FLUORENE	4.1 E	5.3	2.9	1.1 U	0.97 U	0.75 U	1.1 J	0.2 U	0.48
INDENO(1,2,3-CD)PYRENE	0.2 U	0.20 U	0.2 U	0.21 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
NAPHTHALENE	160	163	100	1.1 U	0.97 U	1.4	1.9 U	0.2 U	0.2
PHENANTHRENE	2.2	3.5	2.2	1.1 U	0.97 U	0.75 U	1.9 U	0.2 U	0.12 J
PYRENE	0.2 U	1 U	0.2 U	1.1 U	0.97 U	0.75 U	1.9 U	0.2 U	0.2 U
Petroleum Hydrocarbons (ug/L)									
TOTAL PETROLEUM HYDROCARBONS	2500	--	2200	260 U	400 J	360 J	1100 U	500 U	420 J
Miscellaneous Parameters (mg/L)									
SULFATE	1 U	--	1.0 U	--	7.4	3.9	1	2.7	0.50 J
TOTAL ORGANIC CARBON	5.2	--	4.3	--	0.8686 U	1 U	1.3	0.33 J	0.87 J

LOCATION	OLFB20MW17 BRN-1120-MW17-01 06/26/03	OLFB20MW17 BRN-1120-MW17-02 09/26/03	OLFB20MW17 BRN-1120-MW17-03 12/11/03	OLFB20MW17 BRN-1120-MW17-04 03/11/04	OLFB20MW17 OLFB20MW17 07/08/00	OLFB20MW18 BRN-1120-MW18-01 06/26/03	OLFB20MW18 BRN-1120-MW18-02 09/26/03	OLFB20MW18 BRN-1120-MW18-03 12/11/03	OLFB20MW18 BRN-1120-MW18-04 03/10/04	OLFB20MW18 OLFB1120MW1805 06/08/04	OLFB20MW18 OLFB20MW18 07/08/00
Volatile Organics (ug/L)											
1,1,1-TRICHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-TETRACHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
1,1-DICHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
1,1-DICHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--
1,2-DIBROMOETHANE	--	--	--	--	--	--	--	--	--	--	--
1,2-DICHLOROBENZENE	--	--	--	--	--	--	--	--	--	--	--
1,2-DICHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
1,2-DICHLOROPROPANE	--	--	--	--	--	--	--	--	--	--	--
1,3-DICHLOROBENZENE	--	--	--	--	--	--	--	--	--	--	--
1,4-DICHLOROBENZENE	--	--	--	--	--	--	--	--	--	--	--
2-CHLOROETHYL VINYL ETHER	--	--	--	--	--	--	--	--	--	--	--
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
BROMOFORM	--	--	--	--	--	--	--	--	--	--	--
BROMOMETHANE	--	--	--	--	--	--	--	--	--	--	--
CARBON DISULFIDE	--	--	--	--	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	--	--	--	--	--	--	--	--	--	--	--
CHLOROBENZENE	--	--	--	--	--	--	--	--	--	--	--
CHLORODIBROMOMETHANE	--	--	--	--	--	--	--	--	--	--	--
CHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
CHLOROFORM	--	--	--	--	--	--	--	--	--	--	--
CHLOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
CIS-1,2-DICHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--
CIS-1,3-DICHLOROPROPENE	--	--	--	--	--	--	--	--	--	--	--
DICHLORODIFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
M+P-XYLENES	1 U	2 U	2 U	2 U	--	1 U	2 U	2 U	2 U	2 U	--
METHYL TERT-BUTYLETHER	1 U	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U	1 U
METHYLENE CHLORIDE	--	--	--	--	--	--	--	--	--	--	--
O-XYLENE	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	--
TETRACHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLEMES	1 U	3 U	3 U	3 U	3 U	1 U	3 U	3 U	3 U	3 U	3 U
TRANS-1,2-DICHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--
TRANS-1,3-DICHLOROPROPENE	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
VINYL CHLORIDE	--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organics (ug/L)											
1-METHYLNAPHTHALENE	0.11 J	0.2 U	0.096	0.2 U	2.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U
2-METHYLNAPHTHALENE	0.092 J	0.2 U	0.2 U	0.2 U	2.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U
ACENAPHTHENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U
ACENAPHTHYLENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U
ANTHRACENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U
BENZO(A)ANTHRACENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U
BENZO(A)PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U
BENZO(B)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U
BENZO(G,H,I)PERYLENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U

LOCATION	OLFB20MW17	OLFB20MW17	OLFB20MW17	OLFB20MW17	OLFB20MW17	OLFB20MW17	OLFB20MW18	OLFB20MW18	OLFB20MW18	OLFB20MW18	OLFB20MW18	OLFB20MW18
SAMPLE ID	BRN-1120-MW17-01	BRN-1120-MW17-02	BRN-1120-MW17-03	BRN-1120-MW17-04	BRN-1120-MW17-05	BRN-1120-MW17-06	BRN-1120-MW18-01	BRN-1120-MW18-02	BRN-1120-MW18-03	BRN-1120-MW18-04	BRN-1120-MW18-05	OLFB20MW18
SAMPLE DATE	06/26/03	09/26/03	12/11/03	03/11/04	07/08/00	06/26/03	09/26/03	12/11/03	03/10/04	06/08/04	07/08/00	OLFB20MW18
BENZO(K)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U
CHRYSENE	0.2 U	0.2 U	0.2 U	0.2 U	4.4 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4.4 U
DIBENZO(A,H)ANTHRACENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U
FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U
FLUORENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U
INDENO(1,2,3-CD)PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U
NAPHTHALENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U
PHENANTHRENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U
PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U
Petroleum Hydrocarbons (ug/L)												
TOTAL PETROLEUM HYDROCARBONS	400 J	500 U	310 U	500 U	3560	1300	500 U	570 U	500 U	500 U	500 U	1040
Miscellaneous Parameters (mg/L)												
SULFATE	5.8	5.4	6.5	4.3	--	25	9.8	14	7.4	14	--	--
TOTAL ORGANIC CARBON	1 U	1 U	2.1	0.44 J	--	6.6	1 U	3.7	0.79 J	2.0	--	--

LOCATION	OLFB20MW19	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24
SAMPLE ID	OLFB20MW19	1120MW24-20020723	1120MW24-20020723-D	20MW24-20020502	BRN-1120-MW24-01	BRN-1120-MW24-02	BRN-1120-MW24-03	BRN-1120-MW24-04	BRN-1120-MW24-05	OLFB1120MW2405	OLFB20MW24
SAMPLE DATE	07/08/00	07/23/02	07/23/02	05/02/02	06/25/03	09/24/03	12/10/03	03/10/04	06/07/04	07/08/00	
Volatile Organics (ug/L)											
1,1,1-TRICHLOROETHANE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
1,1,2,2-TETRACHLOROETHANE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
1,1-DICHLOROETHANE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
1,1-DICHLOROETHENE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
1,2-DIBROMOETHANE	--	1 U	1 U	--	--	--	--	--	--	--	--
1,2-DICHLOROBENZENE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
1,2-DICHLOROETHANE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
1,2-DICHLOROPROPANE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
1,3-DICHLOROBENZENE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
1,4-DICHLOROBENZENE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
2-CHLOROETHYL VINYL ETHER	--	5 U	5 U	1 U	--	--	--	--	--	--	--
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
BROMOFORM	--	1 U	1 U	1 U	--	--	--	--	--	--	--
BROMOMETHANE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
CARBON DISULFIDE	--	--	--	1 U	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
CHLOROBENZENE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
CHLORODIBROMOMETHANE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
CHLOROETHANE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
CHLOROFORM	--	1 U	1 U	0.70 J	--	--	--	--	--	--	--
CHLOROMETHANE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
CIS-1,2-DICHLOROETHENE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
CIS-1,3-DICHLOROPROPENE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
DICHLORODIFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
M+P-XYLENES	--	--	--	--	1 U	2 U	2 U	2 U	2 U	2 U	--
METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	1 U
METHYLENE CHLORIDE	--	5 U	5 U	1 U	--	--	--	--	--	--	--
O-XYLENE	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	--
TETRACHLOROETHENE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLENES	3 U	3 U	3 U	1 U	1 U	3 U	3 U	3 U	3 U	3 U	3 U
TRANS-1,2-DICHLOROETHENE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
TRANS-1,3-DICHLOROPROPENE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
TRICHLOROETHENE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
VINYL CHLORIDE	--	1 U	1 U	1 U	--	--	--	--	--	--	--
Semivolatile Organics (ug/L)											
1-METHYLNAPHTHALENE	2.2 U	3.4	3.2	0.61	6.7	0.2 U	26	4.2	8.6	1.9 J	
2-METHYLNAPHTHALENE	2.2 U	5	4.7	0.84	5.9	0.12 J	50	6	16	2 J	
ACENAPHTHENE	2.2 U	1 U	1 U	0.50 U	1 U	0.17 J	7.5 U	0.3	0.36	2.2 U	
ACENAPHTHYLENE	2.2 U	1 U	1 U	0.50 U	0.74 J	0.2 U	7.5 U	0.2 U	0.2 U	2.2 U	
ANTHRACENE	2.2 U	1 U	1 U	0.50 U	1 U	0.2 U	7.5 U	0.2 U	0.2 U	2.2 U	
BENZO(A)ANTHRACENE	0.22 U	0.21 U	0.21 U	0.50 U	1 U	0.13 J	7.5 U	0.2 U	0.2 U	0.22 U	
BENZO(A)PYRENE	0.22 U	0.21 U	0.21 U	0.50 U	1 U	0.2 U	7.5 U	0.2 U	0.2 U	0.22 U	
BENZO(B)FLUORANTHENE	0.22 U	0.21 U	0.21 U	0.50 U	1 U	0.2 U	7.5 U	0.2 U	0.2 U	0.22 U	
BENZO(G,H,I)PERYLENE	0.22 U	0.21 U	0.21 U	0.50 U	1 U	0.2 U	7.5 U	0.2 U	0.2 U	0.22 U	

LOCATION	OLFB20MW19	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24	OLFB20MW24
SAMPLE ID	OLFB20MW19	1120MW24-20020723	1120MW24-20020723-D	20MW24-20020502	BRN-1120-MW24-01	BRN-1120-MW24-02	BRN-1120-MW24-03	BRN-1120-MW24-04	OLFB1120MW2405	OLFB20MW2405	OLFB20MW24
SAMPLE DATE	07/08/00	07/23/02	07/23/02	05/02/02	06/25/03	09/24/03	12/10/03	03/10/04	06/07/04	07/08/00	
BENZO(K)FLUORANTHENE	0.22 U	0.21 U	0.21 U	0.50 U	1 U	0.16 J	7.5 U	0.2 U	0.2 U	0.22 U	
CHRYSENE	2.2 U	0.21 U	0.21 U	0.50 U	1 U	0.2 U	7.5 U	0.2 U	0.2 U	2.2 U	
DIBENZO(A,H)ANTHRACENE	0.22 U	0.21 U	0.21 U	0.50 U	1 U	0.2 U	7.5 U	0.2 U	0.2 U	0.22 U	
FLUORANTHENE	2.2 U	1 U	1 U	0.50 U	1 U	0.2 U	7.5 U	0.2 U	0.2 U	2.2 U	
FLUORENE	2.2 U	0.80 J	0.77 J	0.58	0.7 J	0.2 U	2.9 J	0.39	1.1	2.2 U	
INDENO(1,2,3-CD)PYRENE	0.22 U	0.21 U	0.21 U	0.50 U	1 U	0.2 U	7.5 U	0.2 U	0.2 U	0.22 U	
NAPHTHALENE	2.2 U	1 U	1 U	0.50 U	1 U	0.13 J	7.5 U	0.08 J	0.36	2.2 U	
PHENANTHRENE	2.2 U	1 U	1 U	0.50 U	1 U	0.2 U	7.5 U	0.17 J	0.44	2.2 U	
PYRENE	2.2 U	1 U	1 U	0.50 U	1 U	0.19 J	7.5 U	0.2 U	0.2 U	2.2 U	
Petroleum Hydrocarbons (ug/L)											
TOTAL PETROLEUM HYDROCARBONS	280 U	1400	1620	190 U	1200	500 U	2200 U	350 J	690	769	
Miscellaneous Parameters (mg/L)											
SULFATE	--	--	--	--	3.5	9	3.1	5.6	1.0 U	--	
TOTAL ORGANIC CARBON	--	--	--	--	2 U	1	3.1	1.2	2.3	--	

LOCATION	OLFB20MW25	OLFB20MW25	OLFB20MW25	OLFB20MW25	OLFB20MW25	OLFB20MW25	OLFB20MW25	OLFB20MW26	OLFB20MW26	OLFB20MW26	OLFB20MW26
SAMPLE ID	1120MW25-20020724 07/24/02	20MW25-20020502 05/02/02	BRN-1120-MW25-01 06/25/03	BRN-1120-MW25-03 12/11/03	BRN-1120-MW25-04 03/10/04	OLFB20MW25 07/08/00	1120MW26-20020724 07/24/02	20MW26-20020502 05/02/02	BRN-1120-MW26-01 06/26/03	BRN-1120-MW26-02 09/24/03	OLFB20MW26 09/24/03
Volatile Organics (ug/L)											
1,1,1-TRICHLOROETHANE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
1,1,2-TRICHLOROETHANE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
1,1-DICHLOROETHANE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
1,1-DICHLOROETHENE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
1,2-DIBROMOETHANE	1 U	--	--	--	--	--	1 U	--	--	--	--
1,2-DICHLOROBENZENE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
1,2-DICHLOROETHANE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
1,2-DICHLOROPROpane	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
1,3-DICHLOROBENZENE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
1,4-DICHLOROBENZENE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
2-CHLOROETHYL VINYL ETHER	5 U	1 U	--	--	--	--	5 U	1 U	--	--	--
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
BROMOFORM	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
BROMOMETHANE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
CARBON DISULFIDE	--	0.70 J	--	--	--	--	--	1 U	--	--	--
CARBON TETRACHLORIDE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
CHLOROBENZENE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
CHLORODIBROMOMETHANE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
CHLOROETHANE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
CHLOROFORM	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
CHLORMETHANE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
CIS-1,2-DICHLOROETHENE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
CIS-1,3-DICHLOROPROPENE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
DICHLORODIFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	7.9	4.3	1	0.8 U	0.9 J	4.2	1.5	2.7	1 U	1 U	1 U
M+P-XYLENES	--	--	1 U	0.4 J	2	--	--	--	1 U	1 U	2 U
METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	2 U
METHYLENE CHLORIDE	5 U	1 U	--	--	--	--	5 U	1 U	--	--	--
O-XYLENE	--	--	1 U	1 U	1 U	--	--	--	1 U	1 U	1 U
TETRACHLOROETHENE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLEMES	31.5	12	1 U	3 U	2 J	17.5	3 U	0.80 J	1 U	1 U	3 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
TRANS-1,3-DICHLOROPROPENE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
TRICHLOROETHENE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
TRICHLOROFUOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
VINYL CHLORIDE	1 U	1 U	--	--	--	--	1 U	1 U	--	--	--
Semivolatile Organics (ug/L)											
1-METHYLNAPHTHALENE	112	90	7.3	17	14	94.6	39	59	0.21 U	0.2 U	
2-METHYLNAPHTHALENE	153	100	20	56	18	127	49.8	68	0.21 U	0.2 U	
ACENAPHTHENE	4.2 U	1.3	1.9 U	7.7 U	0.24	8.2 U	0.84 J	0.95	0.21 U	0.2 U	
ACENAPHTHYLENE	4.2 U	0.53 U	1.9 U	7.7 U	0.2 U	8.2 U	1 U	0.50 U	0.21 U	0.2 U	
ANTHRACENE	4.2 U	0.53 U	1.9 U	7.7 U	0.2 U	8.2 U	1 U	0.50 U	0.21 U	0.2 U	
BENZO(A)ANTHRACENE	0.83 U	0.53 U	1.9 U	7.7 U	0.2 U	0.20 U	0.20 U	0.50 U	0.21 U	0.2 U	
BENZO(A)PYRENE	0.83 U	0.53 U	1.9 U	7.7 U	0.2 U	0.20 U	0.20 U	0.50 U	0.21 U	0.2 U	
BENZO(B)FLUORANTHENE	0.83 U	0.53 U	1.9 U	7.7 U	0.2 U	0.20 U	0.20 U	0.50 U	0.21 U	0.2 U	
BENZO(G,H,I)PERYLENE	0.83 U	0.53 U	1.9 U	7.7 U	0.2 U	0.20 U	0.20 U	0.50 U	0.21 U	0.2 U	

LOCATION	OLFB20MW25 1120MW25-20020724	OLFB20MW25 20MW25-20020502	OLFB20MW25 BRN-1120-MW25-01	OLFB20MW25 BRN-1120-MW25-03	OLFB20MW25 BRN-1120-MW25-04	OLFB20MW25 OLFB20MW25 07/08/00	OLFB20MW26 1120MW26-20020724	OLFB20MW26 20MW26-20020502	OLFB20MW26 BRN-1120-MW26-01	OLFB20MW26 BRN-1120-MW26-02
SAMPLE ID										
SAMPLE DATE	07/24/02	05/02/02	06/25/03	12/11/03	03/10/04	07/24/02	05/02/02	06/26/03	09/24/03	
BENZO(K)FLUORANTHENE	0.83 U	0.53 U	1.9 U	7.7 U	0.2 U	0.20 U	0.20 U	0.50 U	0.21 U	0.2 U
CHRYSENE	0.83 U	0.53 U	1.9 U	7.7 U	0.2 U	4 U	0.20 U	0.50 U	0.21 U	0.2 U
DIBENZO(A,H)ANTHRACENE	0.83 U	0.53 U	1.9 U	7.7 U	0.2 U	0.20 U	0.20 U	0.50 U	0.21 U	0.2 U
FLUORANTHENE	4.2 U	0.53 U	1.9 U	7.7 U	0.2 U	8.2 U	1 U	0.50 U	0.21 U	0.2 U
FLUORENE	3.1 J	3	1.9 U	7.7 U	0.36	8.2 U	1.9	2.2	0.21 U	0.2 U
INDENO(1,2,3-CD)PYRENE	0.83 U	0.53 U	1.9 U	7.7 U	0.2 U	0.20 U	0.20 U	0.50 U	0.21 U	0.2 U
NAPHTHALENE	62.8	48	6	16	6.4	42.9	27	36	0.21 U	0.2 U
PHENANTHRENE	1.2 J	0.96	1.9 U	7.7 U	0.11 J	8.2 U	0.83 J	1.1	0.21 U	0.2 U
PYRENE	4.2 U	0.53 U	1.9 U	7.7 U	0.2 U	8.2 U	1 U	0.50 U	0.21 U	0.2 U
Petroleum Hydrocarbons (ug/L)										
TOTAL PETROLEUM HYDROCARBONS	3190	7100	950	1300 U	450 J	2880	3260	4100	520 U	500 U
Miscellaneous Parameters (mg/L)										
SULFATE	--	--	3	4.7	4.4	--	--	--	6	3.5
TOTAL ORGANIC CARBON	--	--	2 U	4.2	1.1	--	--	--	1 U	1 U

LOCATION	OLFB20MW26	OLFB20MW26	OLFB20MW26	OLFB20MW26	OLFB20MW27	OLFB20MW27	OLFB20MW27	OLFB20MW27	OLFB20MW27	OLFB20MW28
SAMPLE ID	BRN-1120-MW26-03	BRN-1120-MW26-04	OLFB1120MW2605	OLFB20MW26 06/07/04	BRN-1120-MW27-01	BRN-1120-MW27-02	BRN-1120-MW27-03	BRN-1120-MW27-04	OLFB1120MW2705	1120MW28-20020723
SAMPLE DATE	12/11/03	03/10/04		07/08/00	06/26/03	09/25/03	12/10/03	03/10/04		07/23/02
BENZO(K)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U
CHRYSENE	0.2 U	0.2 U	0.2 U	4 U	0.2 U	0.14 J	0.2 U	0.2 U	0.2 U	0.21 U
DIBENZO(A,H)ANTHRACENE	0.2 U	0.2 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U
FLUORANTHENE	0.2 U	0.2 U	0.2 U	8.2 U	0.2 U	0.17 J	0.2 U	0.2 U	0.2 U	1 U
FLUORENE	0.2 U	0.2 U	0.17 J	8.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
INDENO(1,2,3-CD)PYRENE	0.2 U	0.2 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U
NAPHTHALENE	0.2 U	0.2 U	0.2 U	10.6	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
PHENANTHRENE	0.2 U	0.2 U	0.2 U	8.2 U	0.2 U	0.077 J	0.2 U	0.2 U	0.2 U	1 U
PYRENE	0.2 U	0.2 U	0.2 U	8.2 U	0.2 U	0.22	0.2 U	0.2 U	0.2 U	1 U
Petroleum Hydrocarbons (ug/L)										
TOTAL PETROLEUM HYDROCARBONS	500 U	500 U	500 U	9350	500 U	500 U	330 U	500 U	500 U	260 U
Miscellaneous Parameters (mg/L)										
SULFATE	7.2	5.3	4.9	--	11	5.5	10	13	4.3	--
TOTAL ORGANIC CARBON	1.4	0.86 J	1.7	--	0.9552 U	1 U	0.91 J	0.93 J	0.50 J	--

LOCATION	OLFB20MW28 20MW28-20020502 05/02/02	OLFB20MW28 20MW28-20020502-D 05/02/02	OLFB20MW28 BRN-1120-MW28-01 06/26/03	OLFB20MW28 BRN-1120-MW28-02 09/25/03	OLFB20MW28 BRN-1120-MW28-03 12/10/03	OLFB20MW28 BRN-1120-MW28-04 03/10/04	OLFB20MW28 OLFB1120MW2805 06/08/04	OLFB20MW29 1120MW29-20020724 07/24/02	OLFB20MW29 20MW29-20020502 05/02/02	OLFB20MW29 BRN-1120-MW29-02 09/25/03
Volatile Organics (ug/L)										
1,1,1-TRICHLOROETHANE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
1,1,2-TRICHLOROETHANE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
1,1-DICHLOROETHANE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
1,1-DICHLOROETHENE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
1,2-DIBROMOETHANE	--	--	--	--	--	--	--	1 U	--	--
1,2-DICHLOROBENZENE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
1,2-DICHLOROETHANE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
1,2-DICHLOROPROPANE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
1,3-DICHLOROBENZENE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
1,4-DICHLOROBENZENE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
2-CHLOROETHYL VINYL ETHER	1 U	1 U	--	--	--	--	--	5 U	1 U	--
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
BROMOFORM	1 U	1 U	--	--	--	--	--	1 U	1 U	--
BROMOMETHANE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
CARBON DISULFIDE	1 U	1 U	--	--	--	--	--	--	0.80 J	--
CARBON TETRACHLORIDE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
CHLOROBENZENE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
CHLORODIBROMOMETHANE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
CHLOROETHANE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
CHLOROFORM	1 J	0.90 J	--	--	--	--	--	1.2	1.1	--
CHLOROMETHANE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
CIS-1,2-DICHLOROETHENE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
CIS-1,3-DICHLOROPROPENE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
DICHLORODIFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
M+P-XYLENES	--	--	1 U	2 U	2 U	2 U	2 U	--	--	2 U
METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	2 U	2 U	2 U	2 U	1 U	1 U	2 U
METHYLENE CHLORIDE	1 U	1 U	--	--	--	--	--	5 U	1 U	--
O-XYLENE	--	--	1 U	1 U	1 U	1 U	1 U	--	--	1 U
TETRACHLOROETHENE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLEMES	1 U	1 U	1 U	3 U	3 U	3 U	3 U	3 U	1 U	3 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
TRANS-1,3-DICHLOROPROPENE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
TRICHLOROETHENE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
TRICHLOROFUOROMETHANE	--	--	--	--	--	--	--	--	--	--
VINYL CHLORIDE	1 U	1 U	--	--	--	--	--	1 U	1 U	--
Semivolatile Organics (ug/L)										
1-METHYLNAPHTHALENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.53 U	0.2 U
2-METHYLNAPHTHALENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.53 U	0.2 U
ACENAPHTHENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.53 U	0.2 U
ACENAPHTHYLENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.53 U	0.2 U
ANTHRACENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.53 U	0.2 U
BENZO(A)ANTHRACENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.53 U	0.2 U
BENZO(A)PYRENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.53 U	0.2 U
BENZO(B)FLUORANTHENENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.53 U	0.2 U
BENZO(G,H,I)PERYLENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.53 U	0.2 U

LOCATION	OLFB20MW28 20MW28-20020502	OLFB20MW28 20MW28-20020502-D	OLFB20MW28 BRN-1120-MW28-01	OLFB20MW28 BRN-1120-MW28-02	OLFB20MW28 BRN-1120-MW28-03	OLFB20MW28 BRN-1120-MW28-04	OLFB20MW28 OLFB1120MW2805	OLFB20MW29 1120MW29-20020724	OLFB20MW29 20MW29-20020502	OLFB20MW29 BRN-1120-MW29-02
SAMPLE ID	05/02/02	05/02/02	06/26/03	09/25/03	12/10/03	03/10/04	06/08/04	07/24/02	05/02/02	09/25/03
SAMPLE DATE										
BENZO(K)FLUORANTHENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.53 U	0.2 U
CHRYSENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.53 U	0.2 U
DIBENZO(A,H)ANTHRACENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.53 U	0.2 U
FLUORANTHENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.53 U	0.2 U
FLUORENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	1.1	0.66	0.2 U
INDENO(1,2,3-CD)PYRENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.53 U	0.2 U
NAPHTHALENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.53 U	0.2 U
PHENANTHRENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.53 U	0.2 U
PYRENE	0.50 U	0.50 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.53 U	0.2 U
Petroleum Hydrocarbons (ug/L)										
TOTAL PETROLEUM HYDROCARBONS	1800	190 U	500 U	500 U	340 U	500 U	500 U	1260	1100	500 U
Miscellaneous Parameters (mg/L)										
SULFATE	--	--	3.6	5	7.8	8.4	8.2	--	--	8.3
TOTAL ORGANIC CARBON	--	--	0.8211 U	1 U	1.2	0.69 J	0.73 J	--	--	1 U

LOCATION	OLFB20MW29	OLFB20MW29	OLFB20MW29	OLFB20MW30	OLFB20MW30	OLFB20MW32	OLFB20MW34	OLFB20MW35	OLFB20MW35	OLFB20MW35	OLFB20MW35
SAMPLE ID	BRN-1120-MW29-03	BRN-1120-MW29-04	OLFB1120MW2905	OLFB1120MW3005	OLFB20MW30	BRN-1120-MW32-01	OLFB20MW34	BRN-1120-MW35-01	BRN-1120-MW35-02	BRN-1120-MW35-03	BRN-1120-MW35-04
SAMPLE DATE	12/10/03	03/10/04	06/08/04	06/07/04	07/08/00	06/26/03	07/08/00	06/26/03	09/25/03	12/10/03	03/10/04
Volatile Organics (ug/L)											
1,1,1-TRICHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-TETRACHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
1,1-DICHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
1,1-DICHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--
1,2-DIBROMOETHANE	--	--	--	--	--	--	--	--	--	--	--
1,2-DICHLOROBENZENE	--	--	--	--	--	--	--	--	--	--	--
1,2-DICHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
1,2-DICHLOROPROpane	--	--	--	--	--	--	--	--	--	--	--
1,3-DICHLOROBENZENE	--	--	--	--	--	--	--	--	--	--	--
1,4-DICHLOROBENZENE	--	--	--	--	--	--	--	--	--	--	--
2-CHLOROETHYL VINYL ETHER	--	--	--	--	--	--	--	--	--	--	--
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
BROMOFORM	--	--	--	--	--	--	--	--	--	--	--
BROMOMETHANE	--	--	--	--	--	--	--	--	--	--	--
CARBON DISULFIDE	--	--	--	--	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	--	--	--	--	--	--	--	--	--	--	--
CHLOROBENZENE	--	--	--	--	--	--	--	--	--	--	--
CHLORODIBROMOMETHANE	--	--	--	--	--	--	--	--	--	--	--
CHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--
CHLOROFORM	--	--	--	--	--	--	--	--	--	--	--
CHLOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
CIS-1,2-DICHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--
CIS-1,3-DICHLOROPROPENE	--	--	--	--	--	--	--	--	--	--	--
DICHLORODIFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	1 U	0.3 J	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
M+P-XYLENES	2 U	2 U	2 U	2 U	--	1 U	--	1 U	2 U	2 U	2 U
METHYL TERT-BUTYL ETHER	2 U	2 U	2 U	2 U	1 U	1 U	1 U	1 U	2 U	2 U	2 U
METHYLENE CHLORIDE	--	--	--	--	--	--	--	--	--	--	--
O-XYLENE	1 U	1 U	1 U	1 U	--	1 U	--	1 U	1 U	1 U	1 U
TETRACHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--
TOLUENE	1 U	0.2 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLEMES	3 U	3 U	3 U	3 U	3 U	1 U	3 U	1 U	3 U	3 U	3 U
TRANS-1,2-DICHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--
TRANS-1,3-DICHLOROPROPENE	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROFUOROMETHANE	--	--	--	--	--	--	--	--	--	--	--
VINYL CHLORIDE	--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organics (ug/L)											
1-METHYLNAPHTHALENE	0.2 U	0.2 U	0.085 J	0.33	2.2 U	0.2 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-METHYLNAPHTHALENE	1.2	0.97	2.7	3.6	2.2 U	0.2 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ACENAPHTHENE	0.2 U	0.12 J	0.21	0.34	2.2 U	0.2 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ACENAPHTHYLENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.2 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ANTHRACENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.2 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BENZO(A)ANTHRACENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U
BENZO(A)PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U
BENZO(B)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U
BENZO(G,H,I)PERYLENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U

LOCATION	OLFB20MW29	OLFB20MW29	OLFB20MW29	OLFB20MW30	OLFB20MW30	OLFB20MW32	OLFB20MW34	OLFB20MW35	OLFB20MW35	OLFB20MW35	OLFB20MW35
SAMPLE ID	BRN-1120-MW29-03	BRN-1120-MW29-04	OLFB1120MW2905	OLFB1120MW3005	OLFB20MW30	BRN-1120-MW32-01	OLFB20MW34	BRN-1120-MW35-01	BRN-1120-MW35-02	BRN-1120-MW35-03	BRN-1120-MW35-04
SAMPLE DATE	12/10/03	03/10/04	06/08/04	06/07/04	07/08/00	06/26/03	07/08/00	06/26/03	09/25/03	12/10/03	03/10/04
BENZO(K)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U
CHRYSENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.2 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U
DIBENZO(A,H)ANTHRACENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U
FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.2 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U
FLUORENE	0.11 J	0.19 J	0.38	1	2.2 U	0.2 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U
INDENO(1,2,3-CD)PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	0.22 U	0.2 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	0.12 J	0.52	1.6	0.29	2.2 U	0.2 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U
PHENANTHRENE	0.2 U	0.1 J	0.086 J	0.43	2.2 U	0.2 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U
PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	2.2 U	0.2 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Petroleum Hydrocarbons (ug/L)											
TOTAL PETROLEUM HYDROCARBONS	500 U	500 U	300 J	490	510	500 U	280 U	500 U	500 U	350 U	500 U
Miscellaneous Parameters (mg/L)											
SULFATE	6.5	7.5	7.3	1.0 U	--	4.9	--	31	16	11	10
TOTAL ORGANIC CARBON	1.1	1.5	1.4	1.8	--	0.871 U	--	0.5829 U	1 U	0.37 J	0.45 J

LOCATION	OLFB20MW35	OLFB20MW35	UNDEFINED
SAMPLE ID	OLFB1120DMW35-05	OLFB20MW35	OLFB20001
SAMPLE DATE	06/07/04	07/06/00	07/09/00

Volatile Organics (ug/L)

1,1,1-TRICHLOROETHANE	--	1 U	--
1,1,2,2-TETRACHLOROETHANE	--	1 U	--
1,1,2-TRICHLOROETHANE	--	1 U	--
1,1-DICHLOROETHANE	--	1 U	--
1,1-DICHLOROETHENE	--	1 U	--
1,2-DIBROMOETHANE	--	1 U	--
1,2-DICHLOROBENZENE	--	1 U	--
1,2-DICHLOROETHANE	--	1 U	--
1,2-DICHLOROPROPANE	--	1 U	--
1,3-DICHLOROBENZENE	--	1 U	--
1,4-DICHLOROBENZENE	--	1 U	--
2-CHLOROETHYL VINYL ETHER	--	1 UJ	--
BENZENE	1 U	1 U	1 U
BROMODICHLOROMETHANE	--	1 U	--
BROMOFORM	--	1 U	--
BROMOMETHANE	--	1 U	--
CARBON DISULFIDE	--	--	--
CARBON TETRACHLORIDE	--	1 U	--
CHLOROBENZENE	--	1 U	--
CHLORODIBROMOMETHANE	--	1 U	--
CHLOROETHANE	--	1 U	--
CHLOROFORM	--	1 U	--
CHLORMETHANE	--	1 U	--
CIS-1,2-DICHLOROETHENE	--	1 U	--
CIS-1,3-DICHLOROPROPENE	--	1 U	--
DICHLORODIFLUOROMETHANE	--	1 U	--
ETHYLBENZENE	1 U	1 U	1 U
M+P-XYLENES	2 U	--	--
METHYL TERT-BUTYL ETHER	2 U	1 U	1 U
METHYLENE CHLORIDE	--	5 U	--
O-XYLENE	1 U	--	--
TETRACHLOROETHENE	--	1 U	--
TOLUENE	1 U	1 U	1 U
TOTAL XYLEMES	3 U	3 U	3 U
TRANS-1,2-DICHLOROETHENE	--	1 U	--
TRANS-1,3-DICHLOROPROPENE	--	1 U	--
TRICHLOROETHENE	--	1 U	--
TRICHLOROFLUOROMETHANE	--	1 U	--
VINYL CHLORIDE	--	1 U	--

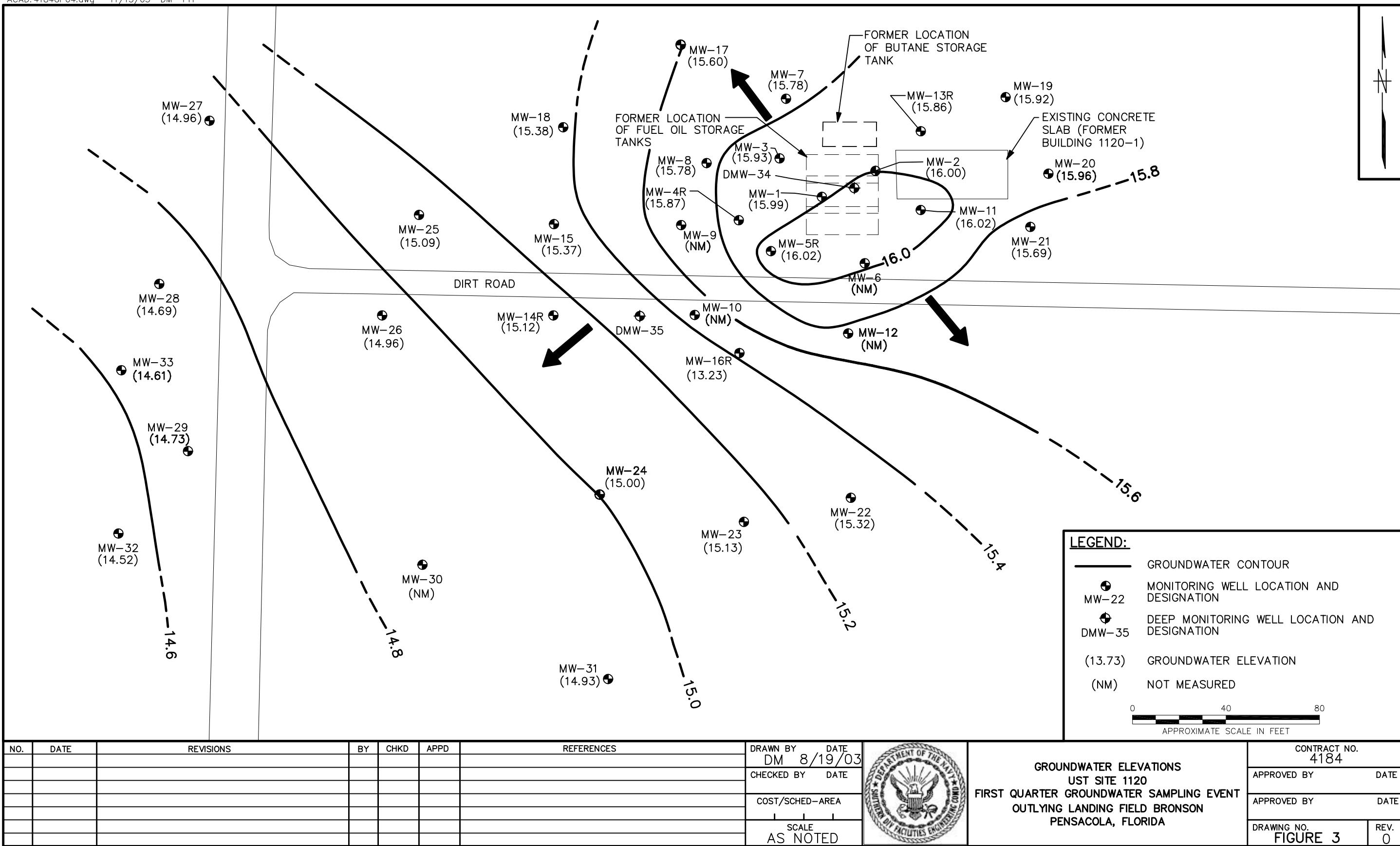
Semivolatile Organics (ug/L)

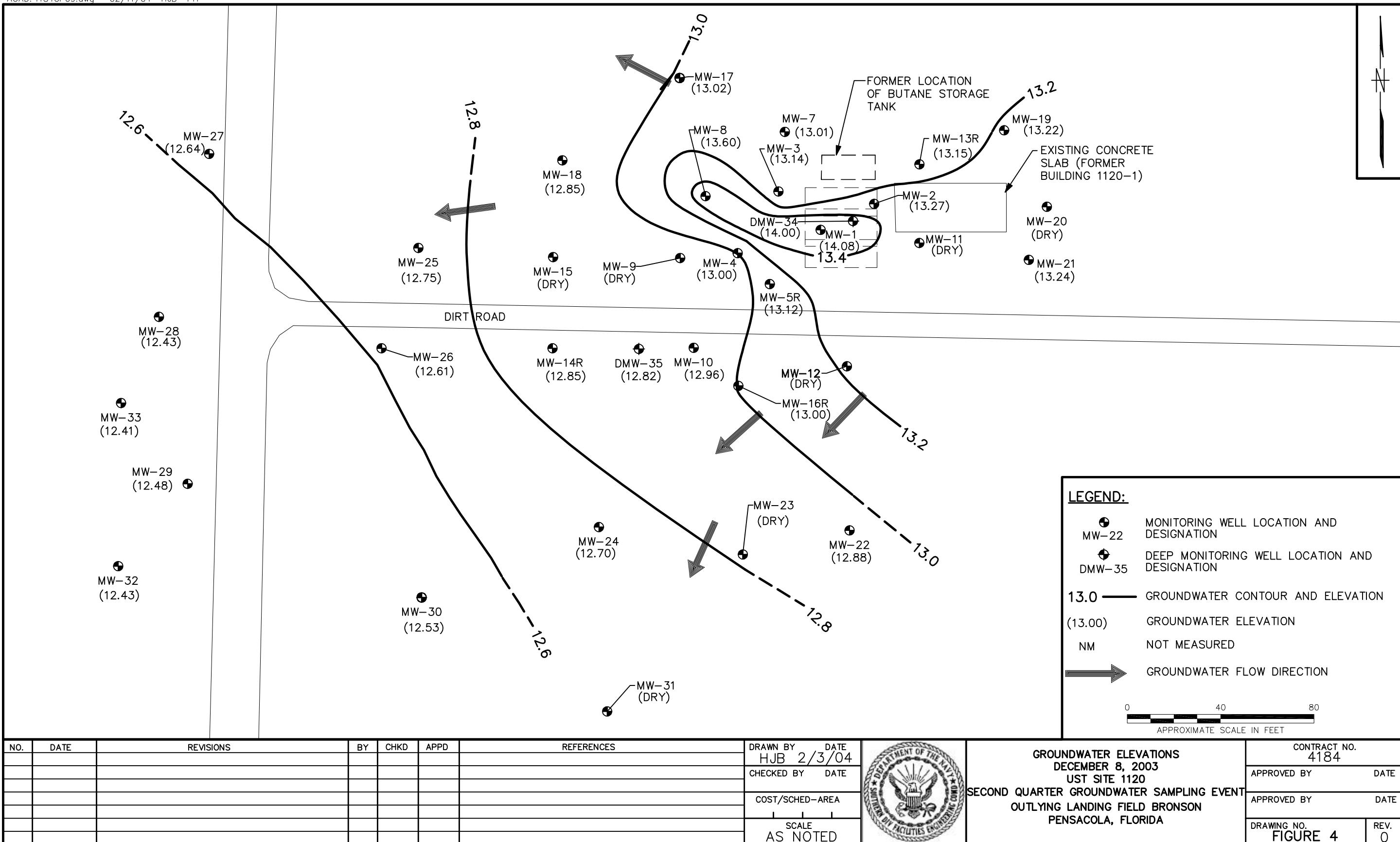
1-METHYLNAPHTHALENE	0.2 U	2.2 U	2.2 U
2-METHYLNAPHTHALENE	0.2 U	2.2 U	2.2 U
ACENAPHTHENE	0.2 U	2.2 U	2.2 U
ACENAPHTHYLENE	0.2 U	2.2 U	2.2 U
ANTHRACENE	0.2 U	2.2 U	2.2 U
BENZO(A)ANTHRACENE	0.2 U	0.22 U	0.22 U
BENZO(A)PYRENE	0.2 U	0.22 U	0.22 U
BENZO(B)FLUORANTHENE	0.2 U	0.22 U	0.22 U
BENZO(G,H,I)PERYLENE	0.2 U	0.22 U	0.22 U

LOCATION	OLFB20MW35	OLFB20MW35	UNDEFINED
SAMPLE ID	OLFB1120DMW35-05	OLFB20MW35	OLFB20001
SAMPLE DATE	06/07/04	07/06/00	07/09/00
BENZO(K)FLUORANTHENE	0.2 U	0.22 U	0.22 U
CHRYSENE	0.2 U	2.2 U	2.2 U
DIBENZO(A,H)ANTHRACENE	0.2 U	0.22 U	0.22 U
FLUORANTHENE	0.2 U	2.2 U	2.2 U
FLUORENE	0.2 U	2.2 U	2.2 U
INDENO(1,2,3-CD)PYRENE	0.2 U	0.22 U	0.22 U
NAPHTHALENE	0.2 U	2.2 U	2.2 U
PHENANTHRENE	0.2 U	2.2 U	2.2 U
PYRENE	0.2 U	2.2 U	2.2 U
Petroleum Hydrocarbons (ug/L)			
TOTAL PETROLEUM HYDROCARBONS	500 U	280 U	280 U
Miscellaneous Parameters (mg/L)			
SULFATE	6.4	--	--
TOTAL ORGANIC CARBON	0.37 J	--	--

APPENDIX C

HISTORICAL POTENTIOMETRIC SURFACE MAPS





NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY HJB	DATE 2/3/04	CHECKED BY	DATE	COST/SCHED-AREA	SCALE AS NOTED	CONTRACT NO. 4184
													APPROVED BY DATE
													APPROVED BY DATE
													DRAWING NO. FIGURE 4 REV. 0

